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Selected Papers.

On Partial Paralysis. By John Shaw, Esq. Lecturer on Anatomy, Great Windmill Street.

(From the Medico-Chirurgical Transactions, vol. xii. part 1.)

It is, probably, well known to many members of this Society, that, during the last two years, very important discoveries have been made on the functions of certain nerves. A general view of these discoveries will be found in a paper in the last volume of the Transactions of the Royal Society.*

In that communication Mr. Charles Bell has shown, by researches into comparative anatomy, and by experiments, this most important fact, that the "*nerves of all creatures may be divided into two parts or systems; the one simple and uniform, the other irregular and complex, in proportion to the complexity of the organization.*" The first he has called *symmetrical* or *original;* the other, the *superadded* or *irregular* nerves. He has also shown, that "no organ which possesses only one property or endowment, has more than one nerve, however exquisite the sense or action may be; but if two nerves coming from different sources are directed to one part, this is the sign of a double function performed by it; and if a part or organ have many distinct nerves, we may be certain, that instead of having a mere accumulation of nervous power, it possesses distinct powers, or enters into different combinations, in proportion to

* On the Nerves, giving an account of some experiments on their structure and functions, which lead to a new arrangement of the system, by Charles Bell, Esq.

the number of its nerves." It is, however, to be recollected, that the nerve called sympathetic, is not included in this arrangement.

As I assisted Mr. Bell in his researches into the comparative anatomy of the nervous system, and in the performance of the experiments by which his opinions have been substantiated, I was naturally induced to take much interest in the investigation. The results of experiments upon the two systems of nerves being very different, it appeared to me probable that, by an examination into the phenomena consequent upon paralysis, it would be found that the symptoms accorded with the system of nerves affected. To this inquiry I have, of late, particularly directed my attention.

The facts which I have already observed, though not yet so numerous as to permit us to come to any absolute conclusions, are still sufficient to show, that *when one system of nerves is affected, the symptoms are different from those following a disease of the other, and that the two systems are seldom affected at the same time.*

To establish these facts, I have published two papers in the Quarterly Journal of Science. In the first communication, in January, 1822, I have entered particularly into the description of the comparative anatomy of the nerves of the face, by which the conclusions previously drawn by Mr. Bell are further proved, viz. that if there be muscles on the face of an animal, corresponding in action with the respiratory muscles of the chest, they will be supplied with nerves not only from the original or symmetrical system, through the fifth or trigeminus, but also from the superadded system, through the nerve commonly called portio dura of the seventh.* In the same paper the result of experiments upon both sets of nerves is also given.

In my second communication I have shown, that in the common cases of hemiplegia, or palsy after apoplexy, the muscles are paralysed only in those voluntary actions, the perfection of which depends on the nerves of the original or symmetrical class; while in the case of partial paralysis of the face, in con-

* To this nerve we have given the name of respiratory of the face. This change in the nomenclature has been made for several reasons; first, in consequence of its being proved by comparative anatomy, that the nerve, at its origin is not connected with the portio mollis, or auditory nerve; secondly, that if, as has been already stated, there be muscles on the face, which accord in action with the respiratory muscles of the chest, they will receive branches from this nerve; and, lastly, if these branches be cut, the muscles will immediately be deprived of the power of co-operating in the act of respiration; the same muscles will, however, retain certain powers, which, by various experiments, are proved to be derived from the fifth pair.

In giving this description of the nerves it is scarcely necessary to state, that the face is, like all other parts of the body, supplied with twigs from the sympathetic.

sequence of an affection of a nerve of the superadded system, the muscles are deprived only of the power over those actions which are to a certain degree involuntary, or to perform which, it is necessary there should be a combination with the organs of respiration. It is also in the same communication proved, that if, in a case of hemiplegia, those actions of the muscles (and those of the face particularly) which are regulated by nerves of the superadded system, be excited, the symptoms produced by the paralysis of the original system of nerves will disappear for the time; it is moreover shown, that if, in a case of paralysis of a nerve of the superadded system, the actions controlled by the nerves of the original system be excited, analogous results will be obtained.

As these observations were confined to questions of anatomy and physiology, I did not presume to offer them to the consideration of the members of the Medico-Chirurgical Society; but a fact, much more important to the physician or surgeon, remains to be shown, viz. that the two kinds of paralysis seldom or never depend on the same cause, and that, consequently, the plan of treatment must be widely different in each case.

Cases of partial paralysis, similar to those which I shall now lay before the Society, are probably familiar to every member; but the fact, that such cases have been only cursorily mentioned by writers on palsy, without any attempt to account for the phenomena presented in them, will perhaps be a sufficient excuse to a learned body, for my entering into details, which of themselves may be uninteresting.

When we recollect the numerous nerves which supply the head and neck, and many of which differ in function from each other, we cannot be surprised that some of them should be affected, while the functions of the others continue unimpaired. Indeed the most common cases of partial paralysis which have been recorded by writers on palsy, are of certain actions of the muscles of the neck and throat. But, at present, I shall confine my observations principally to those cases, where the respiratory functions, and the powers of expression in the muscles of the face, were affected.

The first series of cases will prove that the most common instance of partial paralysis of the face is seldom caused by an affection of the brain, as has been hitherto supposed, but that it generally depends on some injury or disease of the superadded nerve, commonly called portio dura, of the seventh pair, and to which we have given the name of respiratory nerve of the face.

FIRST SERIES OF CASES,

To show the Symptoms and Effects of Partial Paralysis of the Face, in consequence of Inflammation of the Portio Dura.

J. Richardson, October, 1820.—On first looking at this man, there does not appear to be any thing unusual in the state of his face: but the moment he speaks or smiles, the mouth is drawn to the left side. When he laughs, the distortion is increased; and when he sneezes, the difference between the two sides is quite extraordinary.

On holding ammonia to his nose, it was observed that he could not inspire with the right nostril; and, on examining the state of the muscles, when the act of sneezing was excited by the ammonia snuffed up by the left nostril, it was found, that not only those of the right side of the nose and mouth, but also of the eyelids, were passive, while all the muscles of the left side were in full action. When he blew, or attempted to whistle, the air escaped by the right angle of the mouth, the right buccinator not at all corresponding in action with the muscle of the left side, nor with that of the muscles of the chest and neck, by which the air was expelled.

On exciting those actions which, by experiments on animals, we had proved to depend on the fifth pair of nerves, they were all found perfect; i. e. the patient could bring the orbicularis oris into such action as to hold a pencil with it; he could throw a piece of bread from the right to the left side of his mouth by the action of the buccinator,* and he could close his jaws with equal force on both sides. The sensibility of the paralysed cheek was equal to that of the other side.

I need not here particularly describe the phenomena which are observable on the face of a person who is paralytic, after an attack of apoplexy; but merely state, what I think will be found correct in the greater number of instances;† that those actions which I have just enumerated as perfect, in this case, and which are produced through the influence of the fifth pair, will be found deficient; while those, which are influenced by the respiratory nerve, will be perfect. I may further state, that if, in such a case, the actions regulated by the latter nerve be excited, both cheeks will not only be drawn up to an equal degree, but the

* We cannot divide the actions of the muscles of the face simply into voluntary and involuntary. Whistling is a voluntary act, but to perform it, all the muscles of the face connected with respiration must be perfect in their actions; so it is also in snuffing. The action of the buccinator in mastication, is quite independent of the respiratory organs, and this, we may presume, is the reason, why this function of the muscle is not deranged when the portio dura is cut.

† A particular account of the phenomena consequent upon hemiplegia, is contained in my paper in the Quarterly Journal of Science, for April, 1822.

eyelids and eyebrows will act so similarly on both sides, that the distortion and heavy expression, which are so remarkable in a paralytic patient, will disappear for the time.

The history of the first part of the case just related, according to the account given by the patient's friends, was the following.—He was seized with a severe pain under the ear, and in a short time became so delirious, and his face so distorted, that the people in whose house he lodged, supposing him to be mad from brain fever, carried him to the parish workhouse. There he lay until his friends discovered him and brought him into the hospital. It was then found, that the phrensy which had led the people of the lodging-house to suppose that he was mad, was only a high state of delirium, in consequence of a severe attack of cynanche parotidea; indeed the inflammation had run so high, that an abscess formed and burst under the ear. When the swelling subsided, the degree of paralysis was more easily noted.

The delirium and the paralysis of the face naturally led the gentlemen, who first saw this patient, to suppose that the symptoms were caused by an affection of the brain. Luckily, the treatment generally adopted in cases of phrenitis, was best adapted for the particular affection which had caused both the delirium and the paralysis.

The following instance will show to what a degree of needless severity a patient with such an affection may be subjected. During the course of last winter, a surgeon, in town, was much distressed by receiving intelligence that one of his relations in the country was attacked with symptoms of paralysis of the face; but in the course of a short time he was not less surprised than pleased, to hear that his friend had been suddenly relieved of all the symptoms, by the bursting of an abscess in his ear. The progress of this case puzzled my friend not a little, until he read the account of the inquiries in which we had been engaged in Windmill Street. He then related the case to me as a good example of the importance of the discoveries to the medical practitioner; for his relation, in consequence of the paralytic attack having been supposed to proceed from an affection of the brain, had not only gone through all the severe discipline of bleeding, purging, and starving, but had also his head shaved and blistered. Had this been a solitary instance, it might have been supposed that the means employed had effected the cure; but the next case will prove that even the severest general treatment will not, of itself, be sufficient to remedy this particular kind of paralysis. The history will, at the same time, show the difficulty which has hitherto existed, of determining upon the proper course of treatment in such cases.

About two years ago, a gentleman, in consequence of a con-

sultation with an English surgeon in Rome, came over to London, to request Mr. Bell to perform an operation upon his face, by which he hoped that a very unseemly distortion would be remedied. But as this happened before Mr. Bell had made those discoveries, by which we have been able to comprehend the nature and cause of the particular kind of paralysis, which produced the distortion, he was then unable to propose any plan of relief. The case, however, naturally made an impression on Mr. Bell's mind, and when he found that I was investigating the nature of the different paralytic affections, he described it to me, as one which would probably be of use in my inquiry.

A short time after this, I met with a gentleman, the state of whose face so exactly corresponded with the description I had received, that I immediately supposed he must be the same person who had formerly consulted Mr. Bell. On asking him the question, he replied "no, but I know the gentleman you mean, I met him in France a few months ago, and the state of his face is so similar to mine, that I am not surprised, you should have made the mistake; there is, however," he continued, "some difference in the original cause of the distortion in our faces, for on comparing notes with the gentleman you supposed me to be, I found that the distortion of his face, was in consequence of a blow on the head, while in mine, it was caused by a paralytic affection."

According to this gentleman's own statement, the disease commenced with a violent pain below the ear, and in a short time, one side of his face became paralysed. For this paralytic affection, he consulted many eminent men. The first plan of treatment was bleeding, blistering, and starving, the disease being supposed to have its origin in the brain; but as he got rather worse than better, under this treatment, he was put upon a course of mercury, which was carried to such an extent, that he lost several of his teeth. After he recovered from the bad effects of the mercury, he was recommended to attend only to the state of his digestive organs. But the blue pill had no effect upon the distortion. The last advice which this gentleman received, was to wear an issue in his neck; with this, however, he has not complied, as he feared it would, like some of the other remedies, have only the effect of rendering him more uncomfortable.

As the symptoms in this gentleman's case so exactly corresponded with those described in the first example, and with the results of experiments made upon animals, there can be little doubt of their being in consequence of an affection of the portio dura; and, as he has been deaf in the corresponding ear, ever since the first moment of the attack, it is probable that the trunk of the nerve, as it passes through the temporal bone, is the por-

tion affected. The consequences of the paralysis in this case are now so distressing, that they prove the importance of such a knowledge, as will enable us to ascertain the cause of the symptoms at their commencement. The deformity produced by the distortion of the face, and the wasting of the muscles of the paralysed side, are sufficiently vexatious; but the greatest distress is from the loss of power over the eyelids of the same side, for the eye, being thus deprived of its natural coverings during night, as well as day, has been almost destroyed by repeated attacks of inflammation.

This last consequence is particularly observable in a porter of the name of Garrity, who may be often seen about auction rooms, in the West end of London. This poor man, about 19 years ago, was attacked by a severe pain, accompanied with discharge from the right ear. After a paroxysm severer than usual, he found, on getting up one morning, that the right side of his face was paralytic. His present condition, and the description which he gives of the progress of the symptoms, prove that the same results followed this paralysis, as in the case of Richardson already related. But what this poor fellow particularly laments, is, that since the day he was first attacked, he has not been able to close his right eye; and well he may, for the constant exposure of the eye to the light and dust, has been the cause of so many attacks of inflammation, and consequently of the opacity of the cornea, that the eye is now completely destroyed; and this, I fear, will often occur in similar cases, for I have observed, that the eye has always become inflamed in those animals, in which the portio dura has been cut. It is worthy of remark, that the inflammation has been more severe in the dog and in the ass, than in the monkey. One great source of the increase of the inflammation, is the purulent secretion from the conjunctiva; this the monkey wiped away with his hand; but it lodged between the eyelids of the dog and of the ass, so as to form an additional source of irritation.

The cause of the blindness in Garrity is quite obvious. But here I shall make a short digression from my present subject into the question of another kind of blindness, which, though not directly connected with the subject of the paper, will perhaps have the effect of exciting the attention of those who make the diseases of the eye a particular study.

It must be well known to every member of this society, that the common opinion of the pupil being always immovable in amaurosis, is founded in error. I had lately a good opportunity of proving this in the eye of a little girl with partial paralysis of the face, and whose case I have detailed in the Journal of Science for April, 1822. The only *apparent* defect which this girl had, was paralysis of those actions which are controlled

by the right portio dura; but the vision of the right eye was completely lost, although the eye appeared to be in every respect perfect; i. e. whether the other eye was open or shut the pupil of the blind eye contracted and dilated with perfect regularity. When the eye was directed towards the sun, the sound one being closed, the pupil contracted, and when the hand was put before the eye, it dilated; yet, notwithstanding this apparent sensibility of the eye to light, the power of vision was so completely lost, that although a lighted candle was brought close to the child's face, she was not sensible of it until she felt the heat of the flame. To prove that there was no deception practised upon me, which, however, I had not the slightest reason to suspect, I closed the left, and brought my finger so close to the right eye, as almost to touch the cornea; the girl did not appear to be in the slightest degree conscious of the proximity of my finger, but the moment I touched the eye she started back.

No explanation has as yet been given why the pupil should in some cases of amaurosis remain fixed and unaltered by the exposure of the eye to the different degrees of light, while in others it is as sensible to the stimulus of light, as a perfect eye. It will be very difficult to obtain any conclusive evidence on this question; but circumstances seem to prove thus far, that the motions of the iris depend upon other causes, than merely the state of the retina. They are perhaps, in a great measure, controlled by the fifth nerve. In support of this opinion, which, however, I offer as a mere speculation, I may adduce the common occurrence of a slight paralysis of the levator palpebræ, and of the iris, without the retina being at the same time affected. We know that the fifth pair supplies the levator palpebræ, and that the ciliary nerves which go to the iris, are connected with it.

A good example of complete paralysis of the levator palpebræ, and of loss of power in the pupil, without any affection of the retina, occurred last winter; and I was fortunate enough to have an opportunity of examining the body after death. A young woman had a fungous tumour under the jaw; the cheek of the same side was paralytic: the upper eyelid of the same side had fallen; but when the eyelid was raised, the patient could see distinctly, although the pupil was fully dilated and immovable. Upon dissection, it was found that the tumour had extended into the lateral part of the orbit; the fourth nerve ran over the tumour, the third was in the substance of it, but the ophthalmic division of the fifth pair was the nerve most destroyed; the sixth was partially affected. The tumour did not reach as far as the optic nerve. Since all the nerves of the orbit, except the optic, were included in the disease, we cannot

draw any further conclusion from this case, than that the motions of the iris do not altogether depend upon the state of the optic nerve. The voluntary power which some individuals possess over the motions of the iris, will perhaps be considered as in some degree supporting the view which I have taken. The members of the society are, no doubt, aware, that one of their most distinguished associates has this voluntary power over the motion of his iris. Upon an occasion in which the gentleman I allude to, was so kind as to show me, to what an extent he could exercise this power, I thought I could perceive that the exertion which attended the attempt, had some effect upon the motions of the upper eyelid. At one time, I imagined that there was some correspondence between the internal parts of the eye and the portio dura. This I deduced from observing that some patients who had paralysis of the portio dura, were at the same time affected with symptoms of amaurosis. I had also observed that a loss of vision was apparently the consequence of cutting the nerve in a dog. However, further experience has induced me to suspect that the cases which I had seen of amaurosis combined with partial paralysis of the face, were merely accidental coincidences.

Trusting that the society will excuse this digression, I shall now return to my proper subject.

A most remarkable appearance in the face of Garrity is the wasting of all those muscles of the face, which are subservient to respiration and expression. His cheek is so thin, that when he speaks, it flaps about as if it were only skin, and the corrugator supercilii and occipito-frontalis, which are principally muscles of expression, are so wasted, that we might at first sight, suppose they had been removed by operation, and that now the bones were only covered by skin. There can be little doubt that the wasting of these muscles is in consequence of their not having been called into action for many years; since the masseter and temporalis muscles of the same side are not at all diminished in size, being as large as those of the opposite side. A curious example of the effect produced on the growth of the muscles of respiration and expression, by an injury of the portio dura, was afforded in an experiment made upon a young dog. After the nerve was cut, he was taught to snarl whenever a stick was held out to him; this being often repeated, the muscles of the side upon which the nerve was entire, became very strong, while those on the paralysed side rather diminished than increased as the dog grew older. In a few months, the one side of the face was much larger than the other. We may, every day, see similar results following palsy of the limbs.

In the greater number of the cases which I have seen of this partial paralysis of the face, the eye has been more or less af-

fected; but it does not always suffer. There is a broker in the New Road whose appearance is exactly the same as Garrity's, excepting in the state of the eye; for that of the paralysed side is more useful than the other, although the affection has lasted for thirty-five years. I suspect, however, that in this case the superior branches of the nerve are not much affected. An instance, proving that there are just grounds for such an opinion, will be given presently. I may here add, that on inquiring into the history of this man's disease, I found he had gone through the ordinary severe treatment for paralysis, under the care of the late Dr. Pitcairn; the symptoms having been supposed to indicate an affection of the brain. On asking Garrity, what kind of treatment he had undergone for the paralysis of his face when it first appeared, he said that as it was of no inconvenience to him as a porter, he was unwilling to give up his time or money in endeavouring to get rid of what he considered only a deformity; and therefore nothing was ever tried. It is not very unreasonable to suppose, that if he had applied for relief, he would have been treated as if the paralysis had been produced by an affection of the brain.

The only other instance I shall at present offer of a patient having been severely treated for a slight paralytic affection, is that of a friend, who is now an eminent surgeon, and attached to one of the first provincial hospitals in England. While my fellow-student, he was attacked with partial paralysis of the face; for this, we treated him as if it had been caused by an affection of the brain. Under this treatment the paralytic symptoms gradually disappeared, but they would probably have subsided without any such severe measures; for it seemed to have been an instance of that partial paralysis from sudden exposure to cold, which generally disappears even without any local treatment. But so convinced was this gentleman that the paralysis depended on the state of his brain, that up to the present day, he is alarmed by the slightest headache, fearing that it is only the precursor of a more serious attack than that which he suffered while a student. I hope the cases here related will set my old friend's mind at ease upon the subject.

Partial Paralysis, connected with a Diseased State of the Brain.

Cases which will be presently detailed, will further show that we may be mistaken in supposing that the symptoms of paralysis depend always upon an affection of the brain. But I must now state, that there are certain cases of this kind of paralysis which are intimately connected with the condition of the brain, or I should rather say that the same cause which has produced the

local paralysis, may gradually affect the brain. Of this, the following is a common example.

Nov. 30th, *Mary Cummings*, 30 years of age.—About a month ago, this woman was attacked with pain in the right ear, which was followed by a discharge from the tube, and a short time afterwards, she discovered that her face was distorted. Ten days ago, the discharge from the ear stopped. Previous to this, the patient had no pain in the head; but since the discharge ceased, she has suffered much in the temple and occiput; she is giddy and stupefied, and her expression is of that anxious kind, which is so remarkable in those patients, who have a commencing suppuration on the membranes of the brain. The symptoms were relieved by active local and general treatment. Upon this case, I may remark, that a knowledge of the fact, that paralysis of the muscles of respiration of the face is often caused by an affection of the portio dura in its course through the temporal bone, should, in instances where the paralysis is accompanied with pain in the head, lead us to examine the state of the ear, even though we should not be directed to it, by the circumstance of a discharge from the tube. I have no doubt that the symptoms in this case are familiar to every surgeon; a child suffering in a similar manner, was sent to me about two years ago, from Greenwich. At the time, I could not account for the peculiar paralytic symptoms which were evident when the child cried; but now, I have no doubt that it was from the nerve being affected in its course through the diseased temporal bone. This child died some time after I saw it, in consequence of the disease spreading to the cerebellum.*

* After this paper was read before the society, I was requested by Dr. Gregory to see a case of paralysis in which there were some unusual symptoms.

On examining the girl, who was the subject of the disease, I was forced to confess, that if the case had occurred to me earlier in the inquiry, it would probably have induced me to give up the investigation; for there was not only double or total paralysis of the left side of the face; but there was also paralysis of the leg and arm of the same side.

The mother of the child could not give me a very clear account of the origin of the disease. Upon observing that the respiratory nerve of the face, as well as the other nerves, was affected, I suspected that the child was deaf. I found, however, that she was not so; but upon inquiring whether there had ever been any thing the matter with the left ear, the mother immediately replied, "O yes, sir, this ear, at one time, was swelled as large as my fist, and then it broke and discharged a great deal of bad humour from the inside." She then told me that it was some time after the discharge had ceased, that the child, while sitting eating oranges, was seized with a fit and fell down.

The state in which the ear had been is sufficient to account for the derangement of those actions which are regulated by the portio dura; but there is much difficulty in deciding whether the paralysis of the other set of nerves arose from a certain degree of irritation on the brain, in consequence of the disease in the temporal bone, or from some other cause, as in the common cases of hemiplegia, preceded by apoplexy. The circumstance of the paralysis being on the same side of the body, is certainly an objection to the opinion that it was caused by the spreading of that local irritation which affected the portio dura.

These two last examples are common; but I believe we shall occasionally meet with instances of this paralytic affection of the face, and a disease of the brain co-existent, but unconnected with each other, although the same cause may have produced both. The following I offer as an example. A gentleman's groom was, six years ago, thrown from his horse; he was so much hurt about the head, that it was supposed his skull was fractured, particularly as his face was paralytic on one side. However, in about three months, though his face continued distorted, he so far recovered as to be able to go to work. He continued well for three years, the paralysis of the face remaining in the same state; about that time, when walking in the streets, he was seized with an epileptic fit, but from this he so quickly recovered, that he was able to do his duty in the stable the following day. Since that time, he has had about twelve fits, from each of which he has as quickly recovered; but no change has ever been produced in the degree of paralysis, and the appearance of his face is now very similar to that of Richardson. He has been deaf in the paralysed side ever since he fell from his horse, which, to me, is sufficient proof of the paralysis having been produced by an injury to the portio dura, in its passage through the temporal bone. The histories of epilepsy, and the dissections which I have made of persons who have died of that disease, induce me to believe, that in this case, the epilepsy is not owing to the injury of the temporal bone, but to some disease in the substance of the brain, which had probably its origin in the shock, that the brain in general suffered, when the man fell. Several examples of partial paralysis in consequence of injuries of the head will be given presently.

Partial Paralysis in consequence of Exposure to Cold.

There seems to be one cause of paralysis of the respiratory muscles of the face, which is not productive of such serious consequences, as those I have already described; I mean the sudden exposure to cold; indeed, such cases are so common, that the attack is vulgarly called *a blight*. Three instances of

I cannot at present enter farther into the discussion of this question; but I must observe, that independently of the combination of the two kinds of paralysis, the history of the symptoms, and the appearance of the child, induced me to suspect that this instance was more like a case of epilepsy than of common paralysis.

I have been often asked, during the prosecution of this inquiry, what practical benefit could accrue from this distinction of cases? In the body of the paper, I trust that many examples will be found which prove its utility; and even in this obscure case, the symptoms of affection of the portio dura, led me to discover an important circumstance in the history of the disease, and enabled me to point out the part of the head to which we should particularly direct our attention, if we pursue any plan of local treatment.

this are given by Dr. Powell, in the fifth volume of the Transactions of the College of Physicians. They are described as cases of complete paralysis of the face, but this we now know to be an erroneous description, since there is only a loss of power over one set of actions. The same kind of cases, I am told, are very common in India, during the prevalence of the cold winds, and it may sometimes be observed in those unfortunate females who walk the streets during the night. In most of the cases, where the paralysis arises in consequence of exposure to cold, it gradually disappears, while in those patients in whom the affection commences by inflammation and suppuration, it seems to be very difficult to cure.

Example of the Paralysis being confined to a part of the side of the Face, in consequence of only certain branches of the Portio Dura being affected.

Before suggesting any plan of treatment, I may state the necessity of our knowing the course of the nerves upon the face, and the sources from which the several muscles receive their branches; for without this knowledge we cannot apply local remedies with proper effect. The importance of it, in inquiring into the cause of paralytic symptoms, was exemplified in the case of a young lady about whom I was consulted last spring. This lady had for some years, suffered from a nervous affection of the side of her mouth; but she had been lately attacked with what her friends supposed to be a similar disease of the eyelids. On observing the action of the muscles while the lady was eating, I did not perceive any power deficient, but the moment she smiled or laughed, there was distinct paralysis. It was, however, new to me, to see the muscles of the mouth affected at one time, and those of the eye at another, for I had found in all the experiments where the portio dura was cut, and in the cases where the paralysis had been produced by inflammation of the ear, that the muscles of the eye and mouth were affected at the same moment.

On inquiring minutely into the origin of the complaint, the cause of the difference in this case was explained. The inflammation, which was the original source of injury to the nerve, had been confined to a spot above the molar teeth, so that the branches of the nerve which go to the muscles round the eye, were not included in the disease. The affection of the eyelid was quite different from that of the muscles of the mouth; for instead of being paralysed, it was spasmodically affected. It was, however, only that slight twitching which is common in hysterical cases, and would scarcely have been noticed, had it not been supposed to have some connexion with the state of the

mouth. It is worthy of remark, that this young lady found it exceedingly difficult to regulate the muscles of the mouth, when she made her entry into a room, or was obliged to accost strangers.

As she had been partaking of all the gaiety of a London winter, I recommended her to go into the country, and to attend to the general state of her health. After she had been a short time at the sea-side, the twitchings of the eyelids ceased, but there was no change produced in the paralysis of the muscles, which had been caused by the previous inflammation of the branches of the portio dura.

Proposal of a Mode of Treatment in Cases of Partial Paralysis of the Face.

The degree of paralysis in the last case though at present slight, is still sufficient to destroy the contour of a very pretty face, and is consequently a subject of much regret to the young lady's friends. But the history of the preceding cases shows more forcibly, the importance of an early cure of this paralysis, for we have seen that the eye generally suffers, and if the case even be such, that the nerves going to the eye are not affected, we know that the distortion will increase in proportion to the time the affection exists, since the muscles of the paralysed side will diminish in size, while those on the opposite side will probably increase in a proportionate degree. That this result generally follows disease of the portio dura, may be proved any day, for it is almost impossible to walk from Piccadilly to St. Paul's, without meeting several examples of this disease in old men, and in some of whom, one side of the face may be observed to be wasted.

In cases of long standing we can scarcely expect to do much good by any plan of treatment; but in the early stages we may perhaps be able, by active local treatment, to restore the nerve to a power of performing its functions. I cannot as yet offer any examples of the effect of remedies upon the injuries of the portio dura, because the cases which have occurred to me since the discovery of the cause of the paralysis, have existed too long to expect that any benefit would result from the most active treatment.

But we have instances of the cure of the same kind of partial paralysis in other parts of the body; and I think there can be little doubt, that, by following the same plan of treatment in those of the face, we may be successful. At present, I am watching the progress of a case of partial paralysis which appears to have arisen from a cause analogous to that of several which I have already described. M. C. dislocated his shoul-

der; after the bone was reduced, and which was easily done, he could move his fingers in the same degree with other patients who have suffered a similar accident; a bandage was put round the arm, but probably too tight, since the arm swelled, inflamed, and at last suppurated over the middle of the triceps muscle. Ever since the commencement of the inflammation, he has lost the use of the extensor muscles of the fingers and thumb. The description which the man gives of the parts affected, and the manner in which he traces out the insensible parts of the skin with the point of his finger, clearly demonstrate that neither the median nor the ulnar nerve are affected, but that it is solely the muscular spiral nerve which has suffered. He cannot open his hand; but, by pulling up the fingers with the other hand, he is enabled to get them over the handle of his spade, and then, he says, he can work as well as his comrades; thus showing that all the flexor muscles are entire in their actions.

The nerve must have been injured either at the time of the dislocation, or by the inflammation which followed the application of the bandage. The latter cause is, I think, the most probable, for such an affection is rarely if ever produced by dislocation; at least, the effect upon the nerves produced by the pressure of the bone generally subsides when the dislocation is reduced. The man is very positive that he could extend his finger previous to the inflammation of the arm.

It is now nearly three months since the attack; but we hope, that by active measures, the power of the nerve may be restored, for already, within a week, a smart blister, laid in the course of the inflamed part of the nerve, appears to have produced some effect.

If blistering, and the occasional application of leeches, restore the power of the nerve in this man, we may presume that a treatment somewhat similar will be beneficial in cases of paralysis of the portio dura.

Paralysis of the Face in consequence of Injuries of the Head.

Instances of partial paralysis of the face must have been frequently observed by those who have had the opportunity of seeing many injuries of the head. The case of the groom, which I have already described, affords an example of it. One of the most unequivocal cases is that of the gentleman to whom I have alluded, as having come from Rome to have an operation performed upon his face. He had been knocked down in a scuffle; when he recovered his senses in the morning, he found that he had lost a large quantity of blood from the ear; since that time his face has been distorted.

While accompanying M. Cloquet, one of the most ingenious

and learned surgeons in Paris, in his morning visit to the Hospital St. Louis, he drew my attention to the case of a woman who had some unusual symptoms, produced apparently by a fracture of the clavicle. On examining her, I discovered all the appearances of paralysis of the portio dura; and on farther inquiry, I found, that at the time the clavicle was broken, she had received a blow on the temporal bone of the same side.

I ought here, in justice to the frankness and liberality of M. Cloquet, to state that he immediately and cordially congratulated me on having an opportunity of giving ocular proof of the correctness with which I had described the consequence of an injury to the portio dura, and which he at the same time acknowledged was quite new to him.

In the Journal of Science for April, 1822, I have particularly described the symptoms in a case of double or total paralysis of one side of the face, in consequence of an accidental injury of the portio dura, and of the fifth pair of nerves on the same side.

As the case is an example of an affection by no means common, and as the symptoms might have been mistaken for those of injury of the brain, I shall perhaps be permitted to introduce a slight sketch of it here, particularly as the details given in the Journal of Science were offered merely for the purpose of contrasting the phenomena consequent upon injury of both systems, with those following the affection of one or other of the systems of nerves.

A bricklayer fell from a scaffold thirty feet high; his right clavicle was broken, his right loin and hip were much bruised, and he received a severe contusion on the head, the marks of which were particularly observable in a puffiness behind the right ear, and in bleeding from the same ear and from the nose.

He was in a state of stupor when brought into the hospital; but from this he soon recovered. For the two or three first days, he appeared to suffer only from the effects of *concussion*, never having any of those symptoms which are generally attributed to *compression*. On the fourth day, it was observed that the angle of the mouth was drawn a little to one side, and there was also a degree of irregularity in the contraction of the pupils. On the sixth day, it was remarked, that while he was asleep, the right eye was more than half open, while the left was closed.

The notes of the case were very fully taken, up to the twenty-fourth day after the accident, and show that the patient had, during the interval, gone through the common series of symptoms which attend a slight inflammation of the brain which is often the consequence of concussion.

The general appearance of this man's face, about six weeks after the accident, was that of a person who had suffered para-

lysis from apoplexy;* but when he spoke or laughed, the distortion was increased, the mouth being pulled much more to one side than is usual in those cases.

On examination into the cause of such an unusual degree of distortion, it was evident that both the portio dura and the fifth pair of the same side had been affected. The phenomena by which this is proved are particularly detailed in the Journal of Science: the description of them I need not repeat here, but merely state that they differed from those presented in the common cases of partial paralysis, not only in the face being distorted while the muscles were at rest, but also in the power of the muscles being deficient during the act of eating. The sensibility of the skin of the same side was also in a great measure destroyed.

The symptoms differed from those in a case of hemiplegia in several important circumstances: first, in the paralysis being confined to the face; secondly, in its being on the same side with that on which the head was affected; and, thirdly, in the palsy being more evident when the patient was made to sneeze or laugh.

The paralytic symptoms were, I think, to be ascribed, not to any affection of the brain generally, but to an injury or inflammation of the portio dura, and a great part of the fifth nerve, either near their origins, or in their passage through the bones of the head.

My reasons for forming this opinion are, that the state of the actions regulated by the portio dura was similar to what is found in cases and experiments where the nerve has been cut. The bleeding from the ear, and the consequent deafness, may be given as proofs that the petrous portion of the temporal bone through which the nerve passes had been injured.

The evidences that we had of the fifth having been injured in its transit through the bones, were, first, in the paralysis being on the same side of the head as that struck in the fall; secondly, in the hemorrhage from the nose; thirdly, in the sensations, both of common feeling and of taste, being destroyed on one side, which is not *always* the consequence of apoplexy, but which must happen if the *trunk* of the third division of the fifth be injured; and, lastly, in the phenomena according with those which are observed when the branches of the fifth are cut.

* In consequence of the clavicle of the same side having been broken, and the loin much injured by the fall, this patient had so much the appearance of a paralytic in walking, that when the degree of loss of power over the limbs was coupled with the distinct marks of paralysis of the face, it led many to believe that every symptom was caused by the injury to the brain. That this opinion was incorrect, was proved when the broken clavicle united, for then, though the paralysis of the face was as distinct as ever, the power over the arm and leg was completely restored.

The symptoms of general affection of the brain, appeared to have been caused by that inflammatory state, which is often a consequence of concussion, but which almost always subsides without leaving any degree of partial paralysis.

Paralysis of the Face in consequence of operations upon it.

The last examples of this kind of paralysis, which I shall at present offer, are those which have followed certain operations on the face.

I recollect that some years ago, in the removal of a tumour from before the ear, the moment the branches of the portio dura were cut, the girl called out, "O, I cannot shut my eye." The cause of this, though obscure at the time, must now be evident.

A coachman had a tumour removed from his face; on returning some time after, he complained that although the operation had freed him of the tumour, it had deprived him of the power of whistling to his horses. The degree of paralysis consequent upon this operation, and the effects produced on the face of a lady by a similar operation, induced me, before I would consent to cut out a small harmless tumour from the face of a gentleman, to put the question to him, whether he would run the risk of being disfigured, by having one side of his mouth paralysed, when laughing or smiling, or retain the small tumour, which might be almost concealed by his whisker. He chose to submit to the disfigurement caused by the tumour, as probably the lesser of the two.*

* An important question connected with this subject remains undecided: whether the portio dura, when cut, is ever reunited so as to be capable of again performing its peculiar functions. In two experiments of cutting the portio dura, which I have already made on a dog and a monkey, the power over the muscles of the face, was, in the course of a few months much restored, while, in another dog, the paralysis of the respiratory muscles was as complete at the end of four months, as on the day after the operation. But as none of these experiments were made with a view to determine the question of the reunion of nerves, I was not particular in the manner of dividing the nerve. M. Magendie, in his Journal for January, 1822, makes the following remarks upon the result of these experiments. "Cette différence dans les deux résultats porte à croire que dans la première opération, la section des nerfs n'a pas été complette: j'ai chez moi maintenant un chien sur lequel j'ai practiqué cette double section, il y a plus de six semaines, les effets sont encore à peu près ce qu'ils étaient le jour même de l'expérience."

The general question of the restoration of the functions of nerves, which have been divided, will probably be more satisfactorily decided by experiments upon the portio dura, than upon any other nerve, since its functions are now distinctly ascertained, both by comparative anatomy, and by experiments.

Upon the deductions which have been drawn from experiments on the par vagum, I shall, at present, only remark, that since many animals which have no par vagum, have stomachs of powerful digestion; the only inferences that can be drawn from the phenomena presented upon cutting the par vagum in the rabbit, &c., are, that in consequence of this bond of connexion between the

The consideration of the effects of cutting the branches of the seventh nerve, will induce us to make our incision in these operations parallel to the branches of this nerve, and not across them. It will make us careful to save nerves, which, heretofore, were considered of little moment.

It is almost needless to state, that there are often certain tumours before the ear, the extirpation of which is so necessary, that in such cases the paralysis must be considered of minor importance. However, if we have an accurate knowledge of the small nerves which pass from before the ear to the mouth and nostril, we may, in extirpating tumours from the cheek, preserve these twigs, and thus avoid substituting distortion for the slight deformity caused by the tumour which we wished to remove; a result which has hitherto frequently followed operations on the face, in consequence of our proceeding on the old idea, that although the parts might be deprived of the supply of nerves from the portio dura, they would still receive sufficient nervous influence from those of the fifth pair.

I may be allowed to suggest that the discovery which has been made of the difference in the functions of the two sets of nerves upon the face, will, perhaps, alter the question of the pathology, and of the operations for the disease called tic douloureux.

PART II.

Inquiry into the State of the Superadded Nerves in Cases of Palsy following Apoplexy.

The examples already given, will probably be considered sufficient evidence in support of the opinions which have been advanced, as far as they relate to affections of the face.

The greater complexity of the nervous system of the viscera, and of the parts combined with them, and the obscurity of the symptoms consequent upon paralysis of the internal parts, make it more difficult to prove that the same order holds in their

stomach, and the organs of respiration, and circulation being destroyed, the functions of the stomach will be more or less disturbed.

With reference to those experiments by which it is attempted to be shown, that the nervous influence passes from the one portion of a nerve to the other, when the cut surfaces are brought into contact, I may state, that after having divided the portio dura of a dog, I placed the two ends of the nerve nicely together, and then stimulated the nostrils, but no effect was produced on the muscles regulated by the nerve. I varied the experiment, by stimulating the portion of the nerve next the brain, with galvanic forceps (the cut surfaces being still in contact); there was then a convulsive action in the muscles of the nostril, but it was the same kind of convulsion as that produced by touching the muscles themselves, and was entirely different from that very peculiar action which is displayed if the stimulus be applied to the nerve when entire, or even to the lower portion of it when it is divided.

paralytic affections; but still, the facts already discovered, entitle us to expect that a clue will eventually be found, by which we shall be able to trace the symptoms of palsy of other parts to their source as easily as we already can those of the face.

In making some observations upon this question, I must crave the indulgence of the society for entering a little into speculation; my excuse must rest on the hope that it may excite others to inquire into the causes of those symptoms of palsy which are of common occurrence.

It is well known that the muscles of the pharynx and œsophagus, the muscles of speech and the sphincter muscles, all of which are supplied with nerves from the superadded system, are occasionally paralysed, without there being, at the same time, any symptom of palsy in the limbs. It is also as well established, that the muscles just enumerated, and those carrying on the *vital functions*, viz. those of respiration, circulation, &c. are seldom impaired in the common cases of hemiplegia. Indeed we have daily opportunities of observing, that respiration and circulation are seldom affected in the common cases of palsy, and that although a patient may have entirely lost the use of the limbs of one side, that still his sphincter muscles are unimpaired. It is needless for me to state, that when the functions of this latter class of muscles are affected in apoplexy, the prognosis is very unfavourable.

In the work of one of the most learned writers on apoplexy, (Dr. Cheyne of Dublin) there is a very extraordinary example given of the functions of an important organ continuing perfect, while one half of the body was paralysed. A woman was attacked with apoplexy, and lay hemiplegic for two days; at the end of that time she was delivered of a living child, the uterus acting in the most perfect manner, so as to expel the fœtus and the secundines, and then contracting regularly, so that the flooding which might have been anticipated, did not take place.

Since partial paralysis is commonly owing to some local affection, it is often possible to discover the cause by dissection; but where there is palsy on one side of the body, or where the internal organs are affected, there is generally so much disturbance to the whole structure of the brain, as will probably prevent us from ever being able to trace each class of symptoms, to the affection of a particular part. In the present state of the inquiry, it will be impossible to offer more than a general surmise, as to what parts of the brain are affected, when there is common hemiplegia, or when there is paralysis of some of the internal organs.

According to the accounts given of dissections of cases, where the patients have recovered from the immediate attack of apoplexy, and have lived for some years, with a palsied state of

one side of the body, the marks of injury to the brain have been commonly found in the centre or upper part. Here, I may add, that a patient, whom I occasionally see, with complete paralysis of the original class of nerves of one side of the body, without any peceptible affection of the superadded system, being in fact, in a state similar to that of common hemiplegia from apoplexy, became so, in consequence of the destruction of a portion of the upper part of the brain, after fracture of the skull. There are very few histories of the dissection of cases, where an affection of the respiratory organ was the principal symptom preceding death; in the work of Dr. Cheyne, there is a very interesting case of apoplexy detailed, in which the chief symptoms were those of irritation of the stomach, and difficulty of respiration: "About an hour and a half after the attack, his breathing was extremely irregular and laborious. Inspiration would cease for nearly a quarter of a minute, and then go on with tolerable regularity for a little; his pulse was slow and irregular, sometimes intermitting; he died about midnight, two hours and a half after his breathing became affected." On examination of the body, a cavity containing a quantity of blood was found in the pons varolii. Perhaps it will be allowed that in this case, the particular class or symptoms arose in consequence of injury to a part of the brain, near to that from which the par vagum and other respiratory nerves arise.

It is a happy circumstance for this inquiry, that the case has been recorded by a gentleman so well known for minuteness and correctness of observation, since the coagulum, which is supposed to be the cause of the symptoms in apoplexy, is seldom found confined to one particular spot, but extended through a considerable part of the substance of the brain; and therefore, although from the rupture of a vessel near the origin of the respiratory nerves, the first symptoms of apoplexy may occasionally be those of disturbance to the respiratory organs, still in consequence of the effusion of blood increasing, the other parts of the body will, in a short time, become affected. This is, perhaps, the reason why there is generally *total* paralysis before the patient expires.

In the work of M. Serres several cases of total paralysis are given. He describes the patients as dying with symptoms of asphyxia, or in a manner similar to animals in which the par vagum of both sides has been divided.

In the account of the dissection of these cases, it is observed that the effusion seemed to have taken place near the pons varolii. One of them is very similar to that related by Dr. Cheyne, the coagulum having been found in the same part. Upon this case M. Serres makes the following remarks: "C' était la première fois, depuis que mon attention était fixée sur

les apoplexies cérébrales, que je trouvais les lobes sains, sur un cadavre qui avait offert pendant la vie une paralysie bien constatée." In the description of the examination of the chest, he says, "Un phénomène singulier et que nous ne devons pas passer sous silence, c'est que les poumons étaint emphysémateux, les cellules pulmonaires étaient boursoufflées et remplies d'air, j' attribue cet effet à la paralysie des deux nerfs pneumogastriques."

Upon this question I shall not at present offer any further observations, as a paper directly connected with the inquiry, and containing facts which will form a secure basis for reasoning upon, the symptoms observable in disordered respiration and circulation, has been lately presented to the Royal Society by Mr. Charles Bell.

I shall, however, take the liberty of trespassing still more upon the time of the society, by making a few remarks upon a very curious question, which has particularly excited the attention of physicians in all ages since the time of Galen :—

Why sensation should remain entire in a limb when all voluntary power over the action of its muscles is lost, or why muscular power should remain when feeling is gone?

The attention of Galen was particularly directed to this question, in consequence of his having been called upon, by some of his contemporaries, to account for the manner in which he had cured a partial paralysis of the finger by applications made to the spine.

In answer, Galen told them, that two sets of nerves went to every part; one to endow the skin with sensibility, the other to give the muscles the power of voluntary action. This opinion was probably founded on a mere theory; but the facts lately discovered, and the observations which have been noted in attending to the phenomena of disease, though they do not afford absolute proofs of the correctness of Galen's supposition, still they go far to establish the fact, that every part of the body which is endowed with two or more powers, is provided with a distinct nerve for each function.

The *form* of the nerves, which at the same time endow the skin with sensibility and the muscles with the power of voluntary motion, is such that they appear to be single cords; but if we examine the origin of any of those nerves, we shall find that it is composed of two packets of fibres which arise from distinct parts of the spinal marrow. These origins are soon enveloped in the same sheath, so as to appear, to a superficial observer, to form a single nerve.

It is not too much to suppose that either of these origins may be affected while the other remains entire. To prove this by ocular demonstration will perhaps be impossible, and therefore

the question will probably remain undecided. But we have already seen examples of the consequence of injury to a nerve that has a single root, viz. the portio dura: for if we cut it, there will be only one set of actions paralysed, while by dividing a nerve which has a double origin, viz. the fifth, we shall destroy two powers, viz. voluntary motion and sensibility. We know also, that when we cut through the trunk of a nerve going to the hand, we destroy both sensibility and the power of motion.

In reference to this subject, I shall state the result of certain experiments which were made about thirteen years ago, by Mr. Charles Bell. The two sets of filaments by which each spinal nerve is connected to the spinal marrow were exposed: on irritating one set, convulsion of the muscles upon which the nerve was distributed, ensued; but when the other was excited, no perceptible effect was produced. These experiments we have often repeated, and always with the same results; but from the violence necessarily used in making them, it has been difficult to ascertain which of the filaments bestows sensibility on the part. It was easily shown, that if only the posterior set was destroyed, the voluntary power over the muscles continued unimpaired; but the pain necessarily attendant upon the performance of the experiment, prevented us from judging of the degree of sensibility remaining in the part.

It was, I believe, the result of these experiments, which induced Mr. Bell to give an opinion nearly similar to that of Galen, in a short essay on the Anatomy of the Brain, which was printed and distributed among his friends in 1809. An opinion somewhat similar has been lately offered by Dr. W. Phillip, in answer to a query of Dr. Cooke's.

If the view which I have here taken of this question be correct, it may lead to this rule of practice. If only one set of functions of a spinal nerve be deficient, we should apply our remedies to that part of the system from which the nerve arises; but if both functions are impaired, we must then direct our inquiries to the state of the nerve in the whole course, from its origin to its distribution, as the loss of power is probably owing to some affection of a part of the nerve, after the two sets of filaments by which it arises, are united together.

I trust it will not be presuming too much, to expect that the detail of the cases in this communication, will excite the members of our profession to inquire into the discoveries which have of late been made on the anatomy and functions of certain nerves.

The effect which these discoveries have already had on the minds of students, I have had ample opportunities of observing. The young anatomist, now, instead of considering the study of the nervous system as a labyrinth into which he dares not ven-

ture, enters upon the investigation with the conviction that it will prove more satisfactory and more interesting, than that of any other department of the science of anatomy. By examining the nervous system in animals less complicated in their structure than man, he is at once able to comprehend the grand arrangements, and, from the nomenclature of the principal nerves corresponding with their functions, he can, in a very short time, make himself master of that, which, to students of former years, was matter of the utmost labour.

Those members of the society, who, while students, spent hours and days in attempting to show all the nerves on the side of the neck and chest, will be able to appreciate the advantages gained by the discovery, that those nerves are in number and intricacy, in proportion to the complex nature of the respiratory organs. I may, perhaps, be permitted to suggest to those who are anxious to investigate the anatomy and physiology of the respiratory nerves, that they will find the inquiry very much facilitated by the dissection of some of the lower animals.

In the greater number of the mammalia, the nervous system within the thorax, is nearly the same as in man. In the abdomen, it has relation to the intricacy of the intestinal canal; hence, it is more complex in the ruminating, than in man, or the truly carnivorous animal. In the neck and face, it bears the same relation to the parts. If an animal has little or no power over the voice, and breathes only by the nostril, as the horse or ass, the arrangement of the respiratory nerves is particularly simple; and if we compare the nerves on the neck of the ass, with those of the dog, which breathes principally by the mouth, we shall be able to understand the complication of the nerves in the neck of man, who breathes not only by the nose and mouth, but has more power over the organs of respiration as vocal instruments, than any other animal.

On the Varieties of Diseases comprehended under the name of Carcinoma Mammæ. By Charles Bell, Esq. F. R. S. Ed. Surgeon to the Middlesex Hospital, and Lecturer on Anatomy in Great Windmill street.

(From the Medico-Chirurgical Transactions, vol. xii. part 1.)

PART I.

The diseases I am about to describe, do not make a silent and gradual progress, leaving the patients to deceive themselves with hope; the danger is impending and immediate, the appearance is striking and monstrous, and fills the mind with horror not to be concealed; the patient sinks gradually, she dies daily, and is conscious that she is dying.

My duty requiring me to visit regularly a numerous class of female patients suffering from cancer, I ought not to reserve my testimony to their conduct—how seldom the pressure of severe pain and the sure approach of death influence them to any expression of impatience or complaint; they are, on the contrary, calm and placid, if not cheerful, giving an example of unostentatious resignation, and the blessed influence of religion —which witnessing, the mind naturally reverts to the boasted instances of philosophy in the other sex, which are as nothing in comparison.

The members of this society will allow that I have other objects more agreeable to pursue, and more creditable if pursued successfully: they will therefore believe, that in bringing this painful subject before them, I am acting from a principle of duty.

Many hopeless cases of local disease, under the name of cancer, are sent into our wards; some of these are tractable, and can be cured; some of them are incurable, by our present means. We ought never to lose the hope of finding a remedy for these; but we have other objects not less important, and within our power of accomplishing. To alleviate pain, to prolong life, to make the disease bearable to the patient, and less a source of horror to friends, is within our power. To distinguish diseases of a different nature, to know when to extirpate with the knife, when to avoid the performance of severe but useless operations, are objects sufficiently important. How often is a simple tumour mistaken for a cancer; how often is a disease of mere irritation from neighbouring or remote sympathy, or even from motion of the part, mistaken for a formidable cancer! There are cases where we have it in our power to relieve the patient from an agony of mind worse than bodily suffering, and by distinguishing diseases to preserve them from being the dupes of quacks who ruin them. By much the larger portion of patients received into the cancer ward of the Middlesex Hospital, have spent their last penny, and what is worse, they have lost that precious time in which they might have been cured, in attendance on a set of the most unfeeling wretches that ever disgraced a country. Indeed, the subject would be sufficiently important if we had no other object than to make those distinctions in the diseases called cancers, and to note those occasional variations in their progress, which afford to that class of persons the means of deceiving.

In treating of the varieties of disease which are called cancers of the breast, I shall first present a history of true carcinoma; I shall then give the character of other diseases, which differ in some circumstances, but which are of the same formidable nature; I shall then return to the consideration of the character

and changes of the more common form of the disease, for the purpose of giving instances of the mistakes we are liable to in treating it, the changes to which it is subject, and through which deceits are practised on public credulity.

I. *Carcinoma mammæ.* We ought first to notice the effect of age on the whole class of carcinomatous tumours; for the same disease, recognisable by obvious signs, will run its course rapidly, and with every symptom aggravated, in a woman of forty-five, while it will remain stationary for years in a woman of sixty or seventy.

In an old woman, the carcinoma will present one or two small tumours exceedingly hard, and attached to, or incorporated with, the wasted mamma, and with the pectoral muscle. The skin over these tumours will become attached, the surface will become discoloured and livid, and will exhibit a great degree of venous vascularity.

These hard lumps will remain very long stationary, having a rosy surface slightly ulcerated. The ulceration will indeed sometimes close, and the tumour remain inactive, while a constitutional disease is making slow progress. The patient, excessively extenuated, will at last sink, from the continuance of a peculiar hectic, attended with pains in the lower part of the spine, hips, and shoulders.

II. The true carcinoma belongs to that term of life, when the uterine functions cease. It occurs in this manner:—The menstruation becomes irregular, both in respect to time and quantity. There are long intervals, after which the discharge is profuse, with unusual disturbance of the general system. The mamma, in particular, sympathises with the condition of the uterus; pains strike through it, and it swells; the general fulness and tension subsiding, a more partial hardness is left, a "hard lump" is felt; it has irregular margins which mix with the substance of the breast. The hardness extends, until there is an unusual firmness over the whole gland; at the same time it becomes tuberculated, or knobby and irregular. The veins on the surface of the mamma, and in the surrounding skin, become more distinct and larger, and of a deeper blue colour. In the mean time, the patient's strength declines, and she visibly wastes in flesh.

A very important character is now exhibited in the change produced on the nipple. It is not only drawn in and incapable of erection, but it is retracted in comparison with the irregular convexity of the mamma. In a later stage, not merely the nipple but the skin is puckered and tucked in, and as if it were drawn into the vortex of disease. They now adhere firmly to

the mass below, and sometimes there is bleeding from the nipple, which taken with the other circumstances is an unfavourable symptom. The glands of the axilla are early affected by the disease when the nipple bleeds.

III. A true carcinoma may begin very differently, and exhibit a different exterior character. A small hard tumour is felt deep seated in the mamma. It is difficult to distinguish whether or not it is a part of the proper gland. Its progress is generally this: it becomes painful, it draws nearer to the surface, it becomes attached to the mamma and to the skin, and is gradually incorporated with them. The skin becomes discoloured, the surface becomes moist, and the patient is alarmed lest a sore should break out.

It does ulcerate, and begins to discharge. The bottom of the sore is foul and sloughy, the smell is offensive, and the constitution sympathises with the state of the sore.

The whole gland is now hard, and adhering to the pectoral muscle. The edges of the sore are particularly hard, of a dark red, and have a glazed appearance. The edges have not risen with everted and curling margins: they are rather depressed under the general convexity of the tumour, and, as it were, condensed into a smaller volume. This will certainly be the appearance presented in a fat woman.

The ulcer is deep and foul; by pressing the tumour laterally it is opened, and the chasm is deep, like a wound with a knife, having solid, abrupt, and sharp edges. In proportion to the depth of the ulcer, the surrounding hardness extends; and when the whole breast is taken betwixt the ends of the fingers, it feels of a stony hardness.

IV. The disease, although commencing in the mamma, will sometimes propagate itself, not so much by engaging the textures of the mammary gland, as by building up its peculiar structure in the cutaneous glandular texture. Tubercles will be felt in the skin around the nipple, and extending to the skin of the breast, neck, and shoulders. These tubercles become painful and are soon attached to the skin. They first assume a high red colour, then a yellowish transparency in the centre. This appearance might persuade us that they were about to break and suppurate, but they do not, nor do they change until they open into a corroding and wasting ulceration.

V. It is a form of the same disease when the breast presents a tumour elevated, tuberculated, and remarkably firm, having no elasticity, but being, on the contrary, fixed to the side, and rocky, so as to present one consolidated mass. The surface is

granular, and of a deep or rather dark red colour, with a bluish cast, and somewhat like the colour of a peach. This tumour ulcerates and sloughs, and bleeds profusely: yet the bleeding may be considered as an accidental circumstance, in as far as it is a mere consequence of the sloughing. The disease is propagated by tubercles under the skin, towards the sternum and clavicles. Effusion into the chest is an early accompaniment of this form of disease.

It is necessary, before we proceed further, to consider the volume and form of the carcinomatous tumour.

One of the most learned surgeons of the present day says, that *tumour* is not an essential character of carcinoma. It is certainly true that there is not always an increase of the dimensions of the whole breast; on the contrary, the true carcinoma is often accompanied with a contraction and diminution of the general bulk. But what is true of the breast or mamma is not true of the *tumour*. For the proper structure of the gland either shrinks or is compressed; and sometimes the surrounding fat is diminished by absorption, so that the whole mass is less than the natural breast, or than what the breast was before the commencement of the disease. But still the diseased part is properly a tumour: there we undoubtedly see an increased mass, a preternatural growth, or new matter, corresponding to the old definition, "*morbosum augmentum.*" But further, and in respect to the adipose membrane, the fat is not always diminished in carcinoma mammæ, but sometimes quite the contrary. And this difference in it will sometimes produce a variety in the external character, when there is none in the disease actually, or in the internal structure. Sometimes from the diminution of fat, the irregular tuberculated structure of this disease will be apparent to the eye and to the touch; while in another patient the breast will be large, full, and smooth, only marked more than naturally with large blue veins, and having an ulcer like a hole dug in the substance of the breast.

VI. *Impostumated Cancer.* Here let me notice a deceptious appearance in the progress of cancer. While the mamma is not yet ulcerated, it will swell and soften and point, and finally burst, with all the appearance of a scrofulous abscess. So that you are sustained with a hope, that the disease is of a less malignant character than you at first imagined. But presently there is disclosed a large chasm sloughy and foul. The parts around this chasm become harder and tuberculated, and the edges are everted. This is the true impostumated cancer.

VII. It is important to observe the variations in the aspect of cancer. The local disease makes its progress in two ways:

1. by *ulceration*, that is by absorption; 2. by *mortification*, and sloughing of successive portions. And accordingly the aspect of the sore varies in a very remarkable manner. To-day, the symptoms shall be mild, the matter bland, and the breast altogether in a tranquil state: to-morrow, it will be full of pain and tumid, the discharge thin and corrosive, certainly acrid, the edges of the sore sharp and of a fiery redness, and the bottom full of sloughs.

But this will not continue; the excited action will again subside; once more the ulcer appears clean, and shows a disposition to heal, and even to cicatrize. Sometimes a cancer will close, and be quite healed; but the skin, though closed, is not sound, it is too vascular and of a dark lake colour, and the parts beneath are hard and irregular.

VIII. *Character of the Ulcer.* When the carcinoma is about to break out into open cancerous sore, the skin becomes attached to the tumour, and thin, and of a livid colour. Small capillary vessels cover the tubercles; the sword pains increase in severity, and an imperfect suppuration takes place, which opens in a deep ulcer; a foul cineritious-coloured secretion lines the cavity of the ulcer, and a thin fluid is discharged from it. The edges of the ulcer are of a fiery redness; the skin is hard, tuberculated, and everted, while the immediate margin is turned in towards the ulcer.

Although the substance wastes and the ulcer be enlarged interiorly, there continues to be a chain of tubercles closely incorporated with the skin. These tubercles are of a bright lake colour, with a shade of livid or leaden colour.

IX. Often the sore spreads superficially, and there is a large surface ulcerated and covered with a film of coagulable lymph, while around, there is a regular elevated edge, as if an attempt had been made to stop the ravages of the ulcer by this circumvallation. This margin is composed of tubercles rising above the margin of the skin, very vascular, livid, hard, and exquisitely painful.

X. *The General Condition of the Patient.* In the mean time the general condition of the patient is pitiable. Suffering much bodily, and every thing most frightful present to the imagination, a continual hectic preys upon her, which is shown in increasing emaciation. The countenance is pale and anxious, with a slight leaden hue; the features have become pinched, the lips and nostrils slightly livid; the pulse is frequent; the pains are severe. In the hard tumours the pain is stinging or sharp, in the exposed surface it is burning and sore. Pains, like those of

rheumatism, extend over the body, especially to the back and the lower part of the spine; the hips and shoulders are subject to those pains. Successively the glands of the axilla and those above the clavicle become diseased. Severe pains shoot down the arm of the affected side. It swells to an alarming degree, and lies immovable.

At length there is nausea and weakness of digestion. A tickling cough distresses her. Severe stitches strike through the side; the pulse becomes rapid and faultering; the surface cadaverous; the breathing anxious; and so she sinks.

XI. *Carcinoma Mammæ Hydatides.* In what I am about to describe, as the hydatid tumour of the mamma, I am not influenced by what Dr. Adams published under the name *Hydatis Carcinomatosa.* He was undoubtedly much deceived. He believed that the pelicles of fat which we may see within the embrace of the diverging filaments of the carcinomatous tumour, were living hydatid animals, and the source of all the mischief. What I have now to describe is a very different tumour to outward appearance, and of a different internal structure compared with the common carcinoma.

When the mamma affected with this disease assumes its full volume, it presents a very remarkable appearance. The tumour stands prominent; its base, that is its connexion with the side, is not the place of its greater diameter. It measures less round the base than a little removed from the side. It is not hemispherical, but of a squared or angular form. The nipple is not drawn in, but stands prominent, and with a natural appearance. The veins upon the surface are of a great size, and yet perhaps only bear a relative magnitude to the tumour. The tumour to a very late stage is loose from the pectoral muscle. It is irregular, and not equally soft or elastic; the elasticity, at certain points, is so considerable as to distinguish it from the common carcinoma.

In operating on such a tumour, it is much easier to turn it off from its connexions than to dissect out a common carcinoma. It is, however, a bloody operation, for many branches of arteries require to be tied.

This tumour when cut into, does not exhibit a concentrated mass, but is distinguishable into parts or clusters of lesser tumours. When these subdivisions are cut into, they present the most common carcinomatous appearance, being firm in texture, and having the ligamentous bands both forming areolæ and diverging lines, and these are distinguishable by their whiteness from the matter they embrace. In the interstices of the tubercles, some larger bags or cells are found, of a yellowish or

amber colour. These cells are of various sizes, and the larger ones contain a dark fluid like blood, or bile.

It is the development and remarkable increase of one or two of these cells, which give a prominent and square character to this species of carcinomatous mamma. This disease, like the common carcinoma, makes its attack at the climacteric period. The tumour is remarkable in the slowness of its growth, and its longer endurance or continuance; nor is it attended with the same severity of pain as the carcinoma we have described. The glands of the axilla are free from disease at a later period than in the tumours described, and the mass may be extirpated with more sanguine hope of permanent advantage.

XII. *Acute Carcinomatous Tumour of the Mamma.* I know not how better to distinguish this disease, than by contrasting it with the others here described, in respect to the rapidity of its progress and the violence of its symptoms, and calling it the acute carcinoma. When several patients afflicted with cancer are in the same ward, there is nothing more remarkable in the local diseases than the difference in respect to their duration, and the rapidity of their progressive changes. The form of the disease I have now to describe is in contrast with the others; it is both more rapid in its course and more severe in its symptoms.

It begins in a hard tumour or kernel deep-seated in the mamma. At first it is loose and slips about under the finger. After a month or two it becomes attached to the skin and the surface is discoloured. The hardness extends to the whole breast, but some one part projects and is more discoloured, exhibiting a purplish red colour. The surface is shining and elastic, as if it contained a fluid. During this stage the pain is severe, and the tumour shoots like a whitlow.

The breast now enlarges, not uniformly, but in successive divisions of the tumour; and as it extends, the structure of the skin is evidently affected, and partakes of the disease. The glands of the skin appear to be enlarged, and the surface becomes studded with small white spots, and as the dark red swelling increases, these spots become more distinct. On the most projecting division an oozing takes place; it promises to suppurate, but no proper suppuration is established. Suddenly the whole tumour swells and inflames with more threatening redness, and increase of pain. Now the countenance indicates pain and anxiety. The skin has a suffused yellowish hue, and the patient feels great lassitude and prostration.

At this stage the disease is hardly to be distinguished from the fungous tumour to be next described; but when it opens and displays its last horrid aspect, it is sufficiently distinct.

After much pain, the enlarged tubercles of the skin become black on the points and break, and discharge a little blood; and after this, serum drains through the dressings. Suddenly the surface becomes extensively sloughy, and the breast is deeply excavated. I have witnessed a patient remarkably relieved of pain by this opening up of the disease.

On the whole, the tumour does not diminish, it extends; the great excavated ulcer is irregular, black, and sloughy, and most offensive. The margins are elevated and tuberculated, and exhibit the same appearance as when first diseased; they rise high in an irregular ridge; distinct tubercles burst and discharge, and mortify, and form other deep sloughy ulcers, or rather deep ill-conditioned chasms. The disease extends by mortification of certain of these tubercles. Sometimes a little blood is lost. Still the tuberculated ridge extends, and the most appalling appearance of open cancer is presented.

XIII. *Cancer commencing in the Areola.* This is a rare disease. It begins in the glands of the dark areola which is around the nipple. The glands become tuberculated, and then ulcerate. The disease encroaches upon the nipple, and destroys it by ulceration. A dark zone of discoloured skin extends around the proper ulcerated surface.

Under this cutaneous ulceration the mamma is full, round, and elastic, while the other breast is loose and natural for the time of life. A fungous excrescence rises from the surface, and if it be destroyed, another soon succeeds. If these excrescences be permitted to extend, they exhibit a soft vascular fungus, and in their growth they draw after them, as it were, a general excitement and throbbing, and pain of the whole breast. But if they be destroyed, this excited condition of the breast subsides again.

In the end, when you think you have subdued the disease, or have succeeded in keeping it in abeyance, symptoms of the constitution partaking of the disturbance, show themselves. The patient becomes emaciated, the countenance of a yellowish earthy colour, pains strike to the back and loins, and she sinks, without the disease of the mamma appearing to be aggravated.

XIV. *The acute fungous Tumour of the Mamma.* When we have made ourselves acquainted with the common course of the carcinoma mammæ, and the changes to which it is subject, we may find ourselves very awkwardly situated, unless we distinguish that, which I am now to describe, from the other diseases of the part. We may be led to say to the friends of a patient—here is a disease which will run its course in four or

six years, and yet the patient's fate may be determined in as many weeks!

The tumour occupies the whole gland. The base is hard, and firmly attached to the pectoral muscle; a dark purple or lake colour is spread over the tumour, and characterizes the inflammation. The tumour seems to be about to point in three or four places; the patient entertains the hope that it is going to burst, like a common abscess, and that she is to be relieved. The colour becomes intensely red, and the surface granular.

When it opens it does not contain fluid as you may have been led to expect; no confined matter is discharged; but a fibrous, soft, fungous substance is disclosed, which bleeds. The pain is very severe, throbbing and burning. The patient falls weak and becomes hectic, pale, and yellow. She sinks rapidly, probably after losing a quantity of blood from the accidental disturbance of the fibrous fungus which projects. Sometimes it bleeds profusely. On removing a poultice, I have seen the blood spout out from a point as from a vein opened with the lancet. In the end, the general hardness has subsided, the prominent, exposed, and ulcerated surface is expanded. It is only prevented from bleeding by the careful application of compress and bandage. Sloughs now appear upon the surface. This state continues but a very few days; for the patient declines rapidly in strength.

Internal Structure of the Carcinoma Mammæ.

On making a section of the most common, and what we call the true carcinoma, in an early stage of the disease, we are struck with the solidity or density of its structure. The parts seem intimately blended into one mass, and we would be tempted to say, there is a remarkable defect of vascularity; as if the substance were too dense to admit of free circulation. Though this be an old opinion, we have too many proofs to the contrary.

On examining the section, a hard centre is observed, with bands of a firm white texture diverging from it. There are communicating branches of these ligamentous bands, which form meshes, and betwixt these meshes a distinct substance, a new matter is found.

Both the fibrous diverging texture and the softer substance which is secreted and deposited within the embrace of the meshes, are new textures, not known to the original structure of the mamma. Nor is it quite obvious which is the primary diseased texture: whether the bands, or the matter that is embraced within them. But as the dense lines are propagated from the centre, and as they can be traced into the surrounding fat, and the glandular texture, we may presume that this is the

original form of the disease, and that the softer substance is only perceived when the disease is more fully developed.

As it is the constitution of many of the natural organs to remain as it were suspended in their growth, and at a certain period to assume activity, and fully develop themselves; so, unfortunately, cancerous tumours have the laws of their constitution; and, after a period of deceitful indolence, they acquire activity, and the structure, which was before too dense for inspection, is fully blown and developed.

I have represented the dense centre and the diverging lines in the first drawing.—(*See Plate* I.) This breast I amputated from a lady, who came from the north of England. She lived two years after the operation, and died suddenly of an inflammation of her chest; and the attending surgeon reported to me, that at the time of her death there appeared a hard tubercle on the skin, which was inclined to ulcerate. This circumstance gives interest to the appearance presented in the drawing. For we may observe, that most of the diverging filaments disperse and terminate in the amputated mass. But one longer and larger diverging filament reaches far beyond the hardness which was sensible to the touch during life, and it extends to the utmost margin, and is there abruptly cut off. This must have been cut through, and, consequently, a scion or budding had been left, and hence the return of the disease.

It must be obvious, of how much practical importance this circumstance is; and the question naturally arises—is there any appearance which will, during life, indicate the length to which these filaments may have shot? It is too certain they may have shot far beyond the irregular hardness of the tumour, which can be felt externally. But the retraction of the nipple will indicate the general extent of these bands.

It is of much importance to ascertain the cause of the retraction of the nipple. It is produced by the peculiar carcinomatous texture of filaments, which rise up from the original centre of the disease, and extend betwixt the ducts of the nipple; these, by condensing and destroying the spongy texture of the part, cause its retraction. Now, it unfortunately happens, that by the time these ligamentous bands have, by extending in one direction, produced the retraction of the nipple, they have, in another, extended into the cellular membrane, beyond the margin of the gland.

How often have we heard, and daily hear, the operation determined upon, because the nipple is retracted; and because thereby the true cancer is announced? Yet, to me, it is quite clear, that if the nipple be fully retracted, and if this has been evident for any considerable time, the operation has been too long deferred.

The second drawing (*Plate* II.) is taken from the breast dissected off the dead body, and where the tumour had run its course to termination in death. Here we see that the hard central mass of the tumour had advanced, and that it now involves the whole substance of the mamma and surrounding cellular texture. The whole consists now of a very solid matter, but in which we recognise still the peculiar texture, and the dense ligamentous bands of the carcinoma.

The third drawing (Plate III.) presents the appearance of the internal structure of a tumour of the mamma, that was by the most competent judges called carcinoma; and, upon consultation, was consigned for operation. On making a section of the tumour, after extirpation, I thought we were fortunate in our determination. Here we see a tumour of the same character, as far as regards the ligamentous meshes, and betwixt these meshes a softer matter contained, which is easily dug out, leaving cells. The nipple too had been dragged down by the progress of the tumour; but the favourable circumstance is, the abrupt well-defined margin of the tumour. Instead of propagating itself by the filamentous bands spreading and embracing the cellular texture, we see here, the disease extended by a small tumour, like to the original one, growing up by its side.

On the whole, this is fully as dangerous a tumour as that exhibited in the first and second drawings, but undoubtedly it is a different disease.

A Letter to the Editors, from GEORGE GREGORY, M. D. Physician to the Small-pox and Vaccination Hospital; *inclosing a Correspondence with* Dr. JENNER *on the Subject of Small-pox after Vaccination.*

(From the London Medical and Physical Journal, for Sept. 1822.)

In the 45th volume of your Journal, (April 1821, p. 277,) a letter was published, addressed by Dr. Jenner to the medical profession generally, relative to vaccination, and more especially in reference to the influence exerted on the progress of the vaccine vesicle by the presence of herpetic and other cutaneous affections. This letter was extensively circulated among the members of the profession last year, and doubtless called forth many replies. Every one must have considered Dr. Jenner as well entitled to whatever information he might possess on the important subject of vaccination; and there is no one among us but must have felt a pleasure in contributing, even in the most

trifling degree, to the inquiries of one who has himself so widely extended the boundaries of human knowledge.

It was under this impression that I addressed a letter to Dr. Jenner, in reply to his circular, stating, in a few words, the result of my own observations on the several points to which he had adverted, and on which he appeared desirous to receive information. The opportunity which this correspondence gave me of deriving instruction from Dr. Jenner's extensive acquaintance with the subject of vaccination was, I thought, too good to be lost; and I ventured therefore, towards the close of my letter, to address a few queries to Dr. Jenner on the interesting topics connected with the occurrence of *small-pox after vaccination.* I should never have presumed to intrude these upon the notice of the public, had I not been favoured subsequently with a letter from Dr. Jenner, which cannot, I think, fail to prove very interesting to the profession generally. I have not, indeed, directly received Dr. Jenner's authority for its publication; but I hope he will kindly sanction my making this public use of his communication, when the great interest of the subject is viewed. The points upon which he touches in his letter are every day acquiring a higher degree of importance; and the fruits of Dr. Jenner's experience upon topics of much less consequence will, I may safely venture to say, be at all times gratefully received, and attentively weighed, by his professional brethren.

After offering, in compliance with Dr. Jenner's desire, the result of my own experience on the effect of cutaneous disease upon the progress of the vaccine vesicle, I thus proceeded:

"98, *Great Portland-street, June,* 22, 1821.

* * * * * *

"I trust, Sir, I shall stand excused if I take the opportunity, which the reply to your letter affords, of requesting some information on a subject which now engrosses, in no ordinary degree, the attention of the public and of the medical profession in the metropolis;—I mean the frequent recurrence of small-pox after vaccination. I have reason to know that many practitioners, who have been accustomed to look up to you with great confidence on all matters connected with vaccination, are anxious to know your opinions on this; and I shall think myself particularly fortunate if I should prove the channel of conveying to them the information of which they are in want. Acceptable as they would be at all times, they are now more than ever desirable, since it has been declared, by the highest professional authority recognised in this country, that the pretensions of vaccination to the merit of a perfect and exclusive security in all cases against small-pox were admitted at first

rather too unreservedly; while at the same time it is affirmed, that the *controlling* power of vaccination is next in importance to its preventive influence, and still justifies our high estimation of the value of this great discovery. (*Report of the National Vaccine Establishment, April*, 1821.)

"The points, Sir, upon which, in common with many of my professional brethren, I am desirous of having your opinion, are the following:

"1. Whether you have recently had reason to alter, or modify, the sentiments formerly promulgated by yourself respecting the *complete* security afforded by perfect vaccination against the contagion of small-pox?

"2. Whether, in *every* case of small-pox which occurs subsequent to vaccination, you imagine that the vaccine vesicle had been disturbed in its progress by one or other of the circumstances mentioned in your circular, viz.—

A. Preoccupation of the skin, by herpes or some other variety of cutaneous disease.

B. Spurious matter.

C. Robbing the vesicle incautiously of its contents.

D. External violence done to the vesicle during its earlier stages.

"3. Whether any other impediments to perfect vaccination are known to you besides the four now enumerated; and, if so, of what kind are they?

"4. What effect is produced by *revaccination* in individuals in whom the vaccine vesicle was disturbed in its progress by either of the four causes mentioned above?

"5. Whether the failure of a well-conducted revaccination is *decisive* in favour of the first process having been gone through regularly.

"6. Whether in all, or in any considerable proportion of the cases of *imperfect* vaccination observed by yourself, small-pox followed exposure to the contagion; and, *vice versa*, whether in all, or in any considerable proportion, of the cases of small-pox after vaccination observed by yourself, the progress of the vaccine vesicle was *distinctly* ascertained to have been irregular?

"7. Whether, in your opinion, the character of the secondary affection,—in other words, the *degree* to which small-pox is modified when occurring after vaccination,—is derived *solely* from the *degree* of perfection which the vaccine vesicle had put on during its progress?

"8. Whether any thing has occurred to shake your confidence in the power of vaccination to exterminate small-pox altogether, provided it be solely and universally propagated?

"9. Whether the statement made by you (in a letter ad-

trifling degree, to the inquiries of one who has himself so widely extended the boundaries of human knowledge.

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"7. Whether, in your opinion, the character of the secondary affection,—in other words, the *degree* to which small-pox is modified when occurring after vaccination,—is derived *solely* from the *degree* of perfection which the vaccine vesicle had put on during its progress?

"8. Whether any thing has occurred to shake your confidence in the power of vaccination to exterminate small-pox altogether, provided it be solely and universally propagated?

"9. Whether the statement made by you (in a letter ad-

dressed to a lady near Devizes, and published in many newspapers and journals,) that small-pox is *entirely unknown* in many of the continental kingdoms is derived from authentic private sources, or from the published reports of the physicians of those countries, or such other sources of information as are open to the profession generally?

"10. Whether, when you state small-pox to be *wholly* got rid of in those countries, you include the complaints called in this country 'varioloid,' and believed here to originate in, and to be capable of propagating in their turn, the contagion of small-pox?"

* * * * * *

My object, Mr. Editor, in putting this series of queries, was to endeavour to draw forth Dr. Jenner's opinion on the important subjects of the causes of vaccine small-pox, revaccination, and the reasonable probability of exterminating small-pox altogether. I added to the queries some observations of my own on these three topics; but, as my intention in the present communication is confined to the laying before your readers the opinions of Dr. Jenner, I have here omitted them. Upon a future occasion, perhaps, I may ask your permission to recur to the subject.

The following was Dr. Jenner's reply:—

"*Berkeley, July* 31, 1821.

"Sir,—I have had the honour of receiving your letter, dated June 22, 1821; for which I beg you to accept my acknowledgments.

"The wishes of great numbers interested in the subject of vaccination with regard to the publication of my further inquiries, will, I hope, be complied with in due time. With a view to extend the general rules necessary for observance in the practice of vaccination, the circular has been published, as you know; and, at the same time, to collect the opinions and observations of others, in addition to my own. After the full operation of this measure, so expedient in the present times, I hope to give the public the results on the most extended basis, as formed by my own researches, and those of others who have particularly attended to the subject. A projected work of this nature would then, as you must fully conceive, be imperfectly anticipated, in its principal bearings, by such replies as must necessarily be given to complete all your queries. I shall have great pleasure, however, in giving a general answer.

1 and 2.—I must observe, that, in forming an accurate judgment of the causes of failure in vaccination, it is absolutely requisite to obtain correct information of the then existing state of the subject, and whether any of the important coincidences

which I have made known were influential during its progress. Without such information, (as the operation of that law of the animal economy which produces confusion when the vaccine and herpetic fluids meet through the medium of the constitution, has been witnessed in innumerable instances,) no datum can be formed.

With respect to those dictates which have emanated from the National Vaccine Establishment, I have not, in many points, held myself bound to concur; nor am I to be identified with that body, though by no means at variance. My own opinions are formed on long and almost exclusive physiological attention to the subject; and I have measured their value by the success of my own practice, and that of those who have strictly adhered to the rules arising out of these observations. I am enabled to reply, that strict attention to the state of the skin, to the uninterrupted progress of the vesicle, and caution as to mechanical interferences, will, as a general law, produce complete protection; though it would be in opposition to my former opinions, if I maintained that variolous susceptibility could in all cases be *entirely* extinguished. (See, in one of the early volumes of the Medico-Chirurgical Transactions, a paper communicated by me, and entitled 'Facts, for the most part unobserved, or not duly noticed, respecting Variolous Contagion.') But, if we admit the occasional influence of small-pox infection upon vaccinated subjects from latent habits of constitution, so we must admit that we are justified by facts in balancing against this the numerous liabilities to recurrence of its own action.

"3d Answer.—I know of none at the present moment.

"4th.—If the vaccine vesicle is in the first instance imperfect, and the impediment is not removed till subsequently, it is open to a second action in different gradations, according to the character which the vaccine vesicle put on in the first instance.* Even though a vaccine vesicle has been sufficient to grant full security, an imperfect pustule may form from very variable dispositions of the skin, and run through its course in a time much limited by the true. The more general consequence, however, is resistance to the restoration of its own action.

"5th.—Failure of well-conducted revaccinations is, according to my experience, decisive, unless the original impediment which had deranged the primary process continues to exist; for it is one of the laws of vesicular affections in such cases occasionally to obstruct any tendency of the vaccine or variolous fluids to re-establish themselves at all, till cleared away. In such

* See my paper, vol. xii. p. 97, *London Medical and Physical Journal*, where perfect failure is shown to have followed a vesicle deranged by herpes.

cases, no appearance, or the appearance of an irregular vesicle, would be too equivocal to warrant security from the previous vaccination.

"6th.—In considerable numbers, I have seen varioloids occur in all their gradations. To the second part of this query, I may answer in the affirmative; but it is impossible always to procure the requisite information.

"8th.—No. Every thing to increase it in a higher degree, especially since I discovered the grand impediment.

"9th.—Both private and public; from the principal authorities and cities in Europe, as well as the British staff in our possessions in Asia.

"10th.—Varioloids must have occurred every where, where my rules have not been enough regarded. Continental nations begin now, much to my happiness, to glance at the most common cause.

"The letter to which you allude as lately published at Devizes, was improperly stripped of all its accompaniments by the newspapers which republished it. It came out by the earnest desire of a lady there, and of a gentleman of respectability, who headed it by a note of his own. It was followed by an admirable letter of Dr. Headley's, who is well known as an eminent and very extensive practitioner in that country. Being thus circulated without its explanations, it appeared very different from what I intended; and I wish you to have the goodness to name it to any one who may be struck with its singularity.

"I have the honour to be, Sir,
"Your obedient and very humble servant,
"EDW. JENNER."

"*To Dr. Gregory, London.*"

It is not my intention at present, Mr. Editor, to prosecute this subject farther. Its importance must, I think, be very generally admitted, and may be offered in apology for laying before your readers a correspondence which was not intended for the public eye.

98, *Great Portland-street; August* 5, 1822.

Observations on the Treatment of Fever, founded on Pathological Anatomy. By ROBERT WIGHT, M. D., of the Madras Medical Establishment, formerly president of the Royal Physical Society of Edinburgh, &c.

(From the London Medical Repository, for July and August, 1822.)

When the young practitioner, in reading the works of men who have had extensive opportunities for observation, and who

have made trial of the different means that are daily recommended for the cure of fevers, finds, that one prefers emetics—another, cathartics—a third, blood-letting—a fourth, cold, applied in various ways—a fifth, stimulants—a sixth, mercury—and a seventh, combining more or fewer of these, according as he thinks it suits his patient; and each of these plans extolled by its own votary as next to infallible in the plurality of cases, while all the others are decried as useless or dangerous,—he (the young practitioner) is placed in a very awkward situation, when called to the bedside of a patient labouring under fever. For, to whichever of these plans he is inclined to give the preference, he is appalled by the dreadful effects which are sometimes said to follow its adoption, by those who advise a different practice; and, still, he is afraid to leave his patient to nature.

In this state of perplexity, no wonder should he be inclined to abandon a profession so fraught with difficulty, and so involved in obscurity and confusion, by the blind bigotry of men determined to oppose whatever appears contrary to their own fancy, or is beyond the stretch of their own intellect. But—is it possible to explain the cause of those differences in opinion and practice, which have existed and do exist? And, if so, how are we to do this? These are questions of the highest importance; and it were well that every individual who aspires to the honour of alleviating the miseries of mortality, were inspired with a desire to prosecute the inquiry, and were candid enough to submit the effect of his labours to the observation of his medical brethren. Many, no doubt, have attempted this arduous task; but, many also have failed in the attempt. If, like those that have preceded, this attempt also fail, it will, I trust, be attended with no other consequence than adding one to the number of failures.

It is my intention, in the following pages, not to lose sight of a radical principle, which may enable us, if not to remove all difficulties, at least to diminish their number; and thus give future investigators a better chance of succeeding in this inquiry. The principle to which I allude, is, the state of the constitution or *diathesis* that predominates in persons attacked with fever. All the constitutional varieties of this kind may be reduced to four—the inflammatory—the typhoid—the scorbutic—and the strumous.

The two first—the inflammatory and the typhoid—were mentioned, in a former essay,* as the primary states determining the kind of fever which follows the exposure of a person to its exciting causes. These two modify, not merely the kind of

* See the third Number of Dr. Johnson's Quarterly Journal for 1818.

fever, but also the treatment applicable to it, when it has been produced. The scorbutic appears to be merely a different degree of the typhoid, as shall be more particularly pointed out afterwards: therefore, the principle of the treatment in these two is nearly the same. When fever attacks a person in whom the strumous diathesis prevails, the treatment must differ from either of the others.

Before advancing further in this inquiry, it may be proper to describe the characteristics of these constitutions; as it is upon a knowledge of them that our practice must be founded. This is one of the most difficult parts of the undertaking: for, although these are so evident that they may be distinguished at first sight, yet we have not words sufficiently precise to express them.

The phlogistic or inflammatory diathesis is the healthy one; or is only present when the best health prevails. It is known by the healthy appearance, the ruddy countenance, and firm texture; by the individual being capable of great exertion, and of continuing that for a great length of time, without intermission. In this constitution the powers of the system, however much exhausted, are quickly renewed by food and rest, even in moderate quantity; and it is characterized by the equally diffused action which occurs when a stimulus is taken,—no one part being more excited than the others. If, by any accident, local inflammation is induced in this habit, it often terminates rapidly in healthy suppuration.

This is the constitution in which inflammatory diseases usually occur, and in which we can have recourse to all kinds of debilitating means, while the system continues vigorous. But, if we allow its energies to be exhausted by its own inordinate actions, it quickly runs into the one next to be described; in which those means, pursued to the same extent, would certainly prove destructive.

It has just been stated, that the typhoid and scorbutic diatheses are very closely allied to each other. In both, we find a depraved state of the secretions—in both, the blood approaches to the coffee colour, and does not seem to undergo its proper changes in the lungs; nor does it coagulate firmly when drawn—in both, there is a very languid circulation;—and the scalpel shows, in both, the muscular apparatus flaccid; while the brain and the spinal marrow approach to that state which Dr. Spurzheim calls "*deliquescent.*" Their principal difference appears to be in their mode of approach. The typhoid diathesis, for the most part, occurs suddenly; and is often as suddenly followed by fever decidedly typhoid. In this diathesis, the brain and spinal marrow are primarily affected; and the function on which the secretion of nervous power depends, is

disordered. The supply of this power being withdrawn from the body, the blood does not undergo its proper changes in the lungs, and, consequently, it loses its *florid*, and assumes the *coffee* colour. Many of the secretions are similarly vitiated: hence the dark colour of the skin; the dark appearance of the tongue and fauces; the dark evacuations from the bowels. Whatever rapidly diminishes the energy of the brain may induce this state:—for example, a violent blow on the head, or a shock of electricity; the depressing passions, as fear, grief, &c.; or violent and long continued exertion. When it arises from these latter causes, it is often removed as rapidly as it is induced, by excitements of an opposite nature, if fever has not supervened. In this habit, when any considerable disturbance occurs on the extremities of the nerves, it is very apt to terminate in mortification. It is in typhus, supervening *thus rapidly to the healthy state*, that we find those very violent symptoms which occasionally accompany it; and it is in *this* form of typhus alone, that we are warranted to use free depletions.

In the usual forms of scorbutic diathesis, the mode of approach is quite different. Here the energies of the brain and spinal marrow are not, as in the typhoid, suddenly diminished; but those of the whole system are gradually exhausted by the continued application of some stimulus, or by reason of the supplies, which enable the system to generate these energies, being withdrawn. This state may be either general or local. We have it general, when the vital powers have been exhausted or diminished, by the long continued use of improper food, &c. Whatever deprives a part of its *nervous* energy, produces the scorbutic state in that part. The swelling then assumes a dull red or brownish colour, while the parts surrounding it are of a healthy appearance. This shows us, that when the blood enters a scorbutic part, or one in which there is a want of nervous power, it immediately becomes dark; and that it again acquires its healthy colour when it leaves the diseased part. We have also dark scorbutic blotches, the integuments surrounding them preserving their natural colour. If we apply stimulants to these parts, so as to induce a determination of nervous influence to them, they lose their dark colour and become red. But if the stimulants are continued, in considerable force, the parts again become brown, in consequence of the re-exhaustion of the nervous power.

Dr. Wilson Philip thinks he has established the identity of the nervous and galvanic influence.* The facts which he advances in support of this opinion, are by no means satisfactory. 1. He found that when the wires from a galvanic battery were

* Vide Experimental Inquiry, 2d Edition, p 245.

immersed in arterial blood, which had been drawn about one minute and a half or two minutes, its temperature was immediately diminished, and that it became of a dark venous colour; that it did not coagulate, and that the coagula which had previously formed were dissolved.* 2. When the wires were put into a cup, and the blood drawn so as to flow on them, he found that its temperature rose during the first minute and half *four degrees;* and that in two minutes more it fell to its original temperature, 98 degrees. After that the temperature continued to sink, and the blood underwent the same changes as in the last.† 3. When the same experiment was performed on venous blood, it neither changed its colour nor gave out heat; but was dissolved, as in the other experiments.‡

From these experiments no conclusion can be deduced: for blood out of the body is no longer the same as when in it; and to endeavour to ascertain the vital properties of the fluids of the body when they are taken out of it, would be the same as to attempt to ascertain the nature of the galvanic fluid, by separately analyzing the water and the plates of which the galvanic battery is composed.

We find, if scurvy affects the body generally, that there is a torpor in the performance of all the functions. The brain participates in this torpor. It is the organ which secretes the nervous power. This function is, of course, imperfectly performed. The blood in this disease is every where dark and dissolved, even in the arteries; and there is a preternatural coldness of the surface and extremities. Again, we find that if this nervous power has been exhausted, in any one part, by inflammatory action, the blood in that part undergoes similar changes. It is the increase or diminution of this power that seems to produce the difference of colour between the arterial and venous blood. The veins, from the thinness of their coats and the difference of the functions which they have to perform, are very sparingly supplied with nerves, in comparison with the arteries. Further, if the galvanic influence is identical with the nervous, why does it not, when applied to blood that has been for some time drawn, produce an evolution of heat? Or why does it destroy the very texture and organization of the blood? This is an event that never occurs in an animal enjoying health; where we have every reason to believe the nervous power exists in its perfect state and equable diffusion. Or why does it not cause a change from the dark colour of the venous, to the bright florid colour of the arterial blood? These are questions which cannot be answered, supposing the galvanic power to be identical with the nervous. But, if we suppose that the galvanic influence acts as a stimulus to the

* Experiments 76 and 78. † Experiment 77.
‡ Experiments 80, 81, and 82.—See also Experiment 79.

nervous power, and that, like all other stimuli, it exhausts that power by the long continuance of the activity it excites, we can explain most of the phenomena it produces on animal matter.

In the commencement of the scorbutic state, the patient usually complains of indigestion, flatulencies, languor, cold extremities. As the disease advances, the tongue becomes foul, the evacuations from the bowels are dark and fœtid; the whole surface changes to a dull brownish colour; the skin is blotched; the gums swell, become spongy, and readily bleed. There are hæmorrhages of dark blood from the bowels and other internal parts: very obstinate discharges of blood occur from very slight injuries, and those are followed by bad foul ulcers; and there is a great tendency to enlarged and varicose states of the veins. This is but a small part of the morbid series of events that might be referred to the scorbutic state; as it varies in degree from the first appearance of pimples on the face of the epicure, up to the worst forms of lepra and elephantiasis; and from the tremor of the drunkard, up to the most complete paralysis.

The *scrofulous* diathesis is of very frequent occurrence, and has attracted much attention, although it is, as yet, not generally understood. It is either hereditary, or may supervene to other diseases. In some children this constitution is very early apparent. Those children with large heads; lax, soft muscles; a great tendency to enlarged joints; and obesity, with a marble colour of the skin; sometimes with a fine flush upon the cheeks, sometimes without; and with turgid vessels on the lining membranes of the eyelids; come within the range of this diathesis. In addition to these indications, it may be stated, that the lymphatic glands in every part of the body are very prone to enlargement. In this constitution, when matter is formed in sores or tumours, it is usually thin, and mixed with white flakes; and sores of any kind have very little tendency to heal. The patients are very liable to coughs, turgescence of the vessels of the mucous membranes, and a disordered state of the bowels (these being sometimes costive, although, in the plurality of instances, the opposite state prevails). Teething is, for the most part, attended with much difficulty and great irritation; and the teeth are, in general, soon attacked with caries. By attention to these symptoms, particularly the state of the glands, this diathesis may be discovered, at any period of life. It is in this constitution that hydrocephalus and phthisis most frequently occur; and in it, there is a general want of activity in the vascular system. Whatever diminishes that activity, increases the diathesis. Therefore, in diseases occurring in this habit, we are not to have recourse to those active depletions which are often necessary in the inflammatory diathesis; nor are we, in *this latter*, to carry our depletions beyond a certain

limit, for fear of inducing the scrofulous habit: an effect which, of late, I have seen in several instances produced.*

The two first of these diatheses, the inflammatory and typhoid, were mentioned as the states on which the nature of fever depends; and, according as fever occurs in the one or other of these constitutions, it partakes of the inflammatory or typhoid character respectively. This holds universally, throughout the whole range of fevers, whether intermittent, remittent, or continued. The diathesis, therefore, being ascertained, we can pretty confidently predict the nature of the fever.

The opinion here supported is very different from that maintained by Dr. Armstrong. He divides fevers into three orders:—"The first contains those fevers proceeding from contagion; the second those proceeding from miasmata; and the third those proceeding from vicissitudes of the weather and other ordinary causes."† He places typhus in the first order, and maintains that "it never exists unless it has been caught by contagion, and that it can propagate itself by the same means."‡ This is an opinion which I conceive is neither founded in nature nor applicable to practice. It is inconsistent with nature: for we find, when an epidemic fever is raging, that one person is attacked, having symptoms as distinctly inflammatory as those accompanying pneumonia or acute rheumatism. And, indeed, we often find the former occurring without any other assignable cause than contagion; while another, who has been affected by the same contagion, has the disease of the gravest type. For example: two persons may be found in the same family, labouring under fever, arising from the same contagion; the one having violent delirium; quick, strong, and full pulse; white tongue, a florid red colour of the surface; great heat of skin; and all the evacuations of a nearly healthy appearance;—while the other has delirium of a low muttering kind; tongue and teeth covered with a dark brown fur; skin of a dull hue; the whole muscular apparatus flaccid; pulse quick, weak, and having a peculiar thrill in its beats; and the evacuations from the bowels of a pitchy black colour. Such cases as these do frequently occur; and, I would ask, whether, if Dr. Armstrong were called to visit such patients, he would say that they laboured under the same disease, and that it was "*an affection of excitement*," demanding "*the decidedly evacuant plan?*" Be it remembered, I am supposing that they both received the contagion at or about the same time. This is further illustrated by experiments which have been made with small-pox inoculation. These experiments have proved that matter, taken after death, from the bodies of persons who had died of the most putrid

* See case of Helen Westwater, hereafter.

† Illustrations of Typhus, p. 3. ‡ Ibid, pp. 6, 7.

small-pox, produced, when inserted into healthy children, the disease in its mildest forms. Are we to call diseases the same, which differ essentially in every respect, merely because the patients have been exposed to one common cause, or contagion?*

Can we say that such a division of fevers as Dr. Armstrong's is applicable to practice? I have no hesitation in saying that it is not; for when a physician is called to a patient labouring under fever, it is a matter of comparatively little moment to him what was its cause, unless it arose from a local evil which he can remove. Indeed, in many instances, it is impossible to discover the cause of fever; and in those circumstances, it is necessary to treat it according to the symptoms which are present, whatever those may be, without reference to the cause. Besides, if the difference of cause has such an effect in determining the nature of fever, how does it happen, when scarlatina or measles are raging, that in one we find the throat affected with simple cynanche tonsillaris, while another is affected with the worst kind of cynanche maligna? These are differences that ought never to occur in two children affected by contagion from the same individual, if they depended on the cause alone. These differences preclude also the possibility of applying the same curative means, with any hope of success, in two diseases arising from the same cause, but occurring in different constitutions. They are of such frequent occurrence, that almost every medical author mentions them; and they may be every day met with in practice; so that it is unnecessary to give more examples in support of what has been advanced on this subject.

The conclusions to be drawn from these premises are, that typhus is a disease added to a constitutional state which may occur either during a continuance of bad health, without fever, or may supervene to the attack of inflammatory fever, by reason of the energies of the system being exhausted; and that specific contagions have no effect in producing particular forms of *fever*, as the facts on record distinctly show. Thus we find that the specific contagion of variola, varicella, measles, scarlatina, and plague, all produce their own peculiar phenomena or eruptions; but that the *fever* accompanying these, in one patient, assumes the mild inflammatory form; in another, the severe; in a third, the mild typhoid; in a fourth, the most putrid character; and often proceeds, through all its stages, without much disturbing the general functions.

The contemporary writers state, that the year preceding 1665

* Dr. Cheyne, in his late Report of the Fever in Dublin, declares, "I am persuaded, that the chief irregularities which we observed during the present epidemic, were owing to the *diathesis* of the individuals in whom they occurred."—*Dub. Hosp. Reports*, p. 21.

(when the plague raged violently in England, and particularly in London,) was extremely wet, and that there was a disease raging among the cattle, which destroyed great numbers of them. "This rotten and corrupted flesh" was brought to market, and sold at a very low price, to the poorer people, who ate it greedily, without a proper mixture of vegetables. Hence arose scorbutic diseases of all kinds; and hence the plague became extremely fatal. Those circumstances were *not overlooked* by some practitioners, who considered the plague as a very inveterate, or, as it was called, an "*outlandish scurvy.*"* For some time after its first appearance in Holland, where scurvy was very prevalent, it was believed to be a very aggravated and fatal form of that disease. The same was also the case in the maritime towns of England. That fact was further corroborated by scorbutic diseases being very common after the plague began to disappear.

Taking this view of the subject, it is unnecessary to argue whether typhus exists in the East or in the West Indies, or in any other part of the world; as it is evident it must exist every where.† If we adopt the division of fevers which classes them according to the constitution in which they occur, we have precise and definite data to direct our practice—when to deplete, and when to support our patients; how to prevent evil, and how to conduct to convalescence. Dr. Armstrong's further division of fever into the simple, the inflammatory, and the congestive typhus, must also be rejected:—as the two first are merely inflammatory fever, the one not remarkable for local inequalities of the circulation; the other having such a combination. That which he calls "*congestive*," appears to be the true typhus. But the presence of *congestion* can form no basis for the division of fever, as *that* may occur in every form, stage, and degree of fever, and even without fever at all. In the former two, we can use depletions, with great freedom; in the latter, much caution is necessary in the use of them.

Having discussed these preliminary matters, we come now to the treatment of fever. To make myself better understood, I shall take a very summary view of the manner in which *local* diseases are produced in fever.

Considering fever, then, as a *general disturbance of the ner-*

* Hodges further says, that before the plague broke out, paleness and languor, and depression of spirits, overspread the mass of the people, as precursors of the dreadful calamity.

† From the year 1809 till 1812, inclusive, the state of the weather, and the diseases generally prevalent during that period, lead to the inference that a disposition to typhus existed then. In 1813 it broke out furiously in Edinburgh; and, in that year, Dr. Sanders first dissected and examined the spines of patients who died of its most malignant form: since which time, typhus has continued in the city and neighbourhood.

vous system, we find that one part of that system may be more affected than the rest: *e. g.* The *head* may be so attacked as to produce *phrenitis*, apoplexy, or violent furor, during which, the most exhausted patients sometimes perform wonderful feats of strength, and often require several persons to hold them in bed. If the nerves of the *eyes* are particularly affected, the patient appears wild, and he thinks he sees phantoms floating before him. If the nerves of the *ear*, there is tinnitus aurium, and he hears sounds that do not exist. If the nerves of the *throat*, spasms, swellings, or paralysis, ensue. If those of the *heart*, palpitations and other irregular actions occur. If of the respiratory organs, the state of the breathing is variously affected, or the intercostal muscles are convulsed. If those of the *liver*, increased, diminished, or vitiated secretions of bile, with spasms of its ducts, and engorgement of its structure, are produced, and followed by jaundice or obstructions—as often occurs in warm climates. It is needless, I presume, to carry this enumeration further. It may, however, be stated, that there is hardly any local disease which may not be found to accompany, occur during its course, or follow fever. I have given this view, for the purpose of showing how every symptom may be referred to its proper source, as we are thus enabled to remove them with more ease, by applications made directly to that source.

It has already been shown, that, in typhus, there is a want of nervous energy in the system, and that the blood is dark and dissolved, in proportion to that deficiency. In synocha, an opposite state prevails. In it, the brain performs all its functions with preternatural activity; and the blood is unusually florid, as is evident from the rosy hue of the skin, and the appearance of the blood itself, when drawn. These differences warrant us in denominating synocha a disease of *increased*, typhus a disease of *diminished* nervous energy. Perhaps these may be objected to, as being mere hypothetical distinctions. On this point I will not enter into any controversy: the distinctions are shown for *practical* purposes, and these they fulfil.

From repeated examinations of the spinal marrow, it appears that the train of morbid actions occurring in *fever* is produced by a general turgescence of the vessels of its membranes, and on the origins of its nerves. But in *synocha*, the contractility or tonicity of the vessels is yet unexhausted; and all that is necessary to effect a cure, is to induce their contraction to their natural diameters. This is to be accomplished by free depletion.

In *typhus*, the nervous power is diminished, or, if I might so say, vitiated; and so is the contractility or tonicity of the vessels. Thus the latter being torpid and overdistended, do not

impart sufficient momentum to the centre of the nervous system; and the healthy relations which ought to subsist between the nervous and vascular systems, by which the nervous power is generated and distributed through the body, are thus destroyed; and unless those relations be restored, death soon follows. The principal indication, therefore, towards a cure, is to restore vascular activity, by which the nervous energy is renewed.

In *synocha*, the most powerful remedies we possess are blood-letting and cold. These two have the property of directly diminishing the vital energy, and are the only well ascertained means we possess, capable of producing this effect, without first acting as a stimulus.

In *typhus*, our principal indication is to call forth the energies still latent in the system. Mercury is one of the best agents for this purpose, the method of using which shall be pointed out in the sequel. These being the indications, we shall now proceed to inquire how far the remedies usually recommended are adequate to their intentions.

1. *Of Blood-letting.*—The judicious abstraction of blood gives us an immense command over the animal economy. From the records of medicine, we learn, that this has been extolled as the only remedy in all diseases, and in every stage of disease. But when the bad effects of an indiscriminate use of blood-letting had forced themselves on the observations of men who were independent, and dared to deviate from the beaten track, it was by them, and their representations, precipitated from its high place in human estimation, to one beneath its deserts. Such changes have often taken place with this individual remedy; some extolling it as almost infallible in all diseases, and others deprecating it with equal ardour—each party supporting their own opinion by apparently incontrovertible facts. In the hands of one practitioner it succeeds to a wish; while, in the hands of another, and in apparently the same circumstances, it destroys the patient. Such are the effects of this remedy, and such they will continue to be, until we have correct principles to guide us through the mazes of uncertainty.

I once saw a patient bled the third time, to relieve what was, to all appearance, a phrenitic attack, supervening on scarlatina. The patient was a stout young man; he had furious delirium; his eyes were red; his face flushed and tumid; the temporal artery beating violently; the pulse hard and strong at the wrists; the thorax and head were pungently hot. These were the symptoms that appeared on first inspection. Notwithstanding the symptoms, in this case, were so well marked, and seemed to call so imperiously for the use of the lancet, at two P. M., I stated to a young gentleman who was along with me, that the

patient would not survive until next morning, if the operation were performed; and I advised the operator to open the temporal artery rather than a vein. I explained my reasons for this advice. The patient was in a public hospital: and I could do no more. A vein was opened, and from sixteen to twenty ounces of blood abstracted. After this the patient became quiet, and an opiate was administered. But he died in two hours after the operation!!! This case may appear extraordinary; yet, when I state, that *his feet and legs were cold up to the knees, and no pulse to be felt at the ancles*, there may be less room for surprise. If this case had occurred in the practice of a true philanthropist, anxious to inquire into the nature, and explain the *modus operandi* of his remedies, he would certainly have laid the history of it before the public, through the medium of some of the medical journals, in order particularly to attract the attention of the faculty to it, and to elicit an explanation why death should so immediately follow blood-letting, in what he considered a case of acute inflammation. I have seen several cases similar to this.*

Is it possible to lay down rules for blood-letting in the cure of fever? This is, indeed, a difficult task! If the patient be in that state which has been just described under the title of *phlogistic diathesis*, with the pulse and heat *equal* in every part of the body, we may have recourse to the lancet, and abstract blood, *till irregularity of the circulation is somewhere induced.* Here we must stop, as there is no more blood left than is just sufficient to maintain the functions of life. In the circumstances mentioned, we need not be afraid to use the lancet, although the patient feel so weak that he can scarcely turn himself in bed. He is then like a person who has got too heavy a load to carry: if we take off a part of it, he moves with facility. Such is the case of a person who feels weakly from the excitement of a violent inflammatory fever. Diminish that excitement, and you diminish the oppression of which he complains. The next object of the practitioner's attention must be to prevent any *irregularity* in the distribution of the blood remaining; otherwise such local congestions may occur as endanger the life of the patient. Such *irregularity* had occurred in the case already detailed: for the man had been bled twice before the fatal bleeding. To enable us to guard against the evil of topical congestions, it will be necessary to examine the state of the circulation *in every part of the body*, at each visit.

* We have also seen cases of this kind, and they strongly portray the necessity of endeavouring to relieve *local* determination, by *local* evacuations, and by counter-irritation. If leeches had been applied to the head, in the above case, followed by cold applications, while the semicupium and sinapisms were employed to draw the blood to those parts which it had deserted, a different result might have been witnessed.

If there is any irregularity, the equality of the circulation must be restored: for example, if any part be hotter than the rest, we must apply cold; and if, on the contrary, cold prevail in any part, we must apply heat or rubefacients to that part. One of the most effectual means of preventing these irregularities from taking place, is the powerful friction of stimulating materials along the spine. This, from the direct nervous and vascular communication subsisting between the spinal marrow and the surface, produces vascular activity on the origins of every nerve, and thus maintains an equable distribution of the nervous power. But when the vessels are turgid and inactive at the origins of the nerves, the nervous power ceases, in the direct ratio of that inactivity, to be diffused through the system. Hence the cold feet, and want of pulse in them. This is proved by the effect of a sinapism or blister to the loins in such circumstances; a more permanent heat being thus produced in the extremities than when applied to the feet themselves. But in these cases it will be more advantageous to apply stimulants to *both* the feet and the loins, in order to produce a corresponding activity at once at the extremities and origins of the nerves.

Cases occur in which there is a strong cordy pulse, and pungent heat of the skin, combined with a violent burning heat of the stomach and bowels. In those circumstances, either cold affusion, or abstraction of blood, even to a moderate extent, is followed by fatal consequences. These symptoms arise only in the worst cases of typhus, and give us reason to fear the approach of gangrene or a general collapse of the system. They, for the most part, depend on irritation in the bowels, which must be removed before we can expect a cure; and for this purpose the intestines must be freely opened by a brisk cathartic, and that followed by an opiate. In particular cases, another difficulty presents itself. It sometimes happens that there are violent local symptoms seeming to require the use of the lancet, wherein, from the irregularity of the circulation, *general* blood-letting would be very injurious: and in these we are to relieve the oppressed parts by local means; restoring, at the same time, circulation where it is deficient. Attention to these rules, will, I am persuaded, render venesection a safe and efficacious remedy in the plurality of instances; although it is evident to every one, who has been engaged in practice, that cases do occur, for which it is impossible to lay down precise rules, especially when the strumous diathesis predominates.

I saw a young woman, aged twenty-two years, who had been attacked with fever. Her general appearance indicated the strumous habit, and she had been long subject to catarrhal affections. The practitioner who was first called, following the too prevalent practice, without regard to the symptoms or con-

stitution of the patient, had immediate recourse to the lancet—merely because she had fever; and he repeated the operation *twice*. After the second blood-letting, he ordered *twelve* leeches to be applied to her head; which was done before I saw her. It is unnecessary to mention the result of this case. Her husband died on the same day with her, in consequence of similar treatment, but under another practitioner. A dissection of the woman was not permitted.

I have heard of other such cases which occurred, some in public, and some in private practice. I have seen also produced, by a too nice adherence to the antiphlogistic treatment, where that was unnecessary, what the patients themselves considered worse than death, viz. a train of diseases rendered altogether incurable, in consequence of the complete exhaustion of the powers of the system, and that train terminating ultimately in phthisis.

The abstraction of blood from the temporal artery is an important means of depletion, in the advanced stages of typhus; but it ought seldom to be used during active inflammation. In inflammatory fever there is a superabundance of arterial blood: drawing blood from an artery increases the relative proportion which the arterial bears to the venous blood, by permitting a greater quantity of the blood to be exposed to the action of the air in the lungs in a given time.* It is in this way, that a few ounces of blood taken from the temporal artery exhilarates the whole body. Hence its utility in typhus and apoplexies of great drunkards, and its injurious effects in inflammatory fever, in which it is our intention to diminish equally the powers of the system, and the action of the heart and arteries.

2. *Purging.*—This is a remedy so generally useful in the treatment of fever, that it may be employed in all its stages. In the commencement of fever it ought to be a primary indication to clear out the bowels freely, by one or two brisk cathartics. After this they ought to be kept regular by smaller doses. If the bowels have been neglected in the earlier stages of fever, the same means ought to be employed in the advanced stages. But I am decidedly against the continued use of very powerful cathartics, during the course of a fever; because this practice, if it do not destroy the patient, induces diseases that make him miserable through life. Nothing is truer than the maxim of Hippocrates, that "excessive evacuations are pernicious." Sometimes the bowels are so extremely torpid, that ordinary doses of cathartics have not the least effect on them. In those circumstances, it is usual to increase the doses to an indefinite extent. This is very improper, as the lining membrane of the

* Vide Dr. Seed's Thesis, as translated in the Medico-Chirurgical Journal (monthly series), vol. ii.

intestines is liable to be destroyed, in consequence of the very powerful stimulants thus applied. Such torpor indicates, that the communication between the brain and the intestines is interrupted, and that the state of the bowels approaches that of a paralytic limb. It has been proved by very many dissections, that, wherever there is paralysis, the vessels on the origins of the nerves supplying the *paralytic* part are very turgid with *dark* blood; and, on the contrary, where there is spasm, that the same vessels are filled with blood of a *florid* colour. In the former case, the vessels appear to be quite inactive; in the latter, to act with vigour. Let us apply these facts to torpor of the bowels. Does it not follow, that, to excite vascular activity on the origins of the nerves, we are not merely to apply stimulants to their extremities, ramified on the intestines, but also as near to their origins as possible? This question is not founded on reasoning *a priori*, but on a fact well established, that a sinapism or a blister, applied to the dorsal region of the spine, will often excite the bowels to action, when the most powerful cathartics fail to produce such effect. It is proved, too, that cathartic substances, mixed with the common volatile liniment, and rubbed along the spine, two or three times a day, will maintain a regular action of the bowels, after a course of cathartics, most assiduously administered, prove unsuccessful. This practice has the advantage of preventing the injury sometimes done to the stomach and bowels, by large and repeated doses of medicine thrown into them.

I mentioned, that a continued use of strong cathartics, during fever, sometimes destroys life. I shall now state some particulars of two cases of this kind: the one fell under my own cognizance; the other was communicated to me by a surgeon, who attended the patient, under the superintendance of a physician. They both happened in the summer of 1818.—A young man was attacked with fever. The symptoms were not violent; and the heat was little above the natural standard. The pulse, although quicker, was never stronger than in health. The fever early exhibited the typhoid character. The tongue and teeth were soon covered with a dark fur; the evacuations from the bowels were also dark, and the whole skin was of a dull hue. In this case, cathartic after cathartic was given, for a week; and nothing was allowed except a little toast and water to relieve thirst, during this time, notwithstanding that there was obstinate coldness of the inferior extremities, for the last three days; at the end of which such irregularities in the circulation were induced, that no stimulants which he could swallow restored equality. Paralysis of the throat ensued, and he died two days afterwards. The other case occurred in the country. The physician ordered powerful cathartics to be given, until

the bowels were so emptied that the pulsation of the aorta could be felt through the flaccid abdominal parietes, along its whole course. The purgatives were not discontinued, but were administered in larger doses, and very strong cathartic injections added, till, at last, several inches of the rectum were forced down by the violence of the tenesmus induced. This man died a few hours afterwards.

These cases show that purging, when improperly used, is not unattended with danger. In the above remarks I have not particularized any medicine as preferable, it being my wish rather to promote the establishment of correct principles, than to narrate what is to be found in every text book.

3. *Emetics.*—This class of medicines is not at present extensively used in the treatment of fever. They have been long kept in vogue by cases occasionally occurring, wherein they cut short a fever in its commencement: it is, perhaps, only in the commencement of fever that they should be used, when the stomach is very generally loaded; and the fever depends much on this circumstance. That state of the stomach is usually accompanied with nausea, indigestion, pain, and distention of the epigastrium; and, for the most part, it happens after eating a full meal or indigestible food. In those cases they are excellent remedies, and may always be administered with safety. But if the patient has been for some days complaining; has had nausea, and loathing of food, without having previously loaded his stomach, we may suppose, that the state of the stomach is an effect, and not a cause of the fever; and, therefore, that vomiting is unnecessary, and might be, as it often is, in such a case, injurious.

Many authors seem to think, that the good effects of an emetic are to be attributed solely to its evacuating the stomach upwards. But this is the least part of the effects of an emetic. During the nausea which precedes vomiting, there is a state of the circulation induced similar to that which occurs in the cold stage of a fever. The pulse becomes quick and irregular, and unequal distributions of the circulation take place. When vomiting begins, the violent muscular action that is every where induced, gives such a stimulus to the vascular system, that activity of vascular action and equality of circulation immediately ensue; and thus remove those local determinations of the circulation, which, on the origins of nerves, produce fever, and which, in other parts of the system, aggravate all its phenomena. According to this view of the action of an emetic, the evacuation of the stomach merely removes a cause, after which the effects would continue, if a series of changes did not take place at the same time. We have, therefore, no more reason to expect that emptying the stomach would remove a fever, than we

have to expect that extracting a thorn would remove the inflammation which it had induced.

It may be asked, Why not give emetics in every case, if this be the way in which they operate? The operation of an emetic is often attended with much danger:—blood-vessels of the brain or of the lungs have been known to rupture, during violent vomiting, and to produce almost instant death.

This, although there were no other objection, is sufficient to prevent their coming into general use; since it is acknowledged by every practitioner, that they do not always cut short the progress of a fever.

4. *Diaphoretics* have been much used by those who were anxious to promote the operations of nature. They are usually ordered to be given in the hot stage, for the purpose of bringing out the sweat sooner, without once considering that before sweating commences there is always increase, and consequent exhaustion of vascular activity, and that whatever prolongs activity, prevents the sweating. This is what takes place when a diaphoretic has been given: it produces febrile excitement before sweating. Diaphoretics, therefore, when given in the hot stage, often aggravate, and may prolong, fever.

Dr. Bateman, speaking of antimony, says, "I formerly prescribed a few grains of antimonial powder nightly, sometimes with an opiate, in the hope of softening the skin and quieting restlessness; but I invariably found that the slumbers had been disturbed, and the skin remained dry as before." The conclusion which he draws from this passage, viz. that antimonials are improper in fever, has been much objected to, but without showing wherein his error consists. Now, the antimony is a stimulant, and, when given in small doses, as Dr. B. gave it, the stimulant effect continues for some time. But if it had been given in a larger dose, or had been administered in small doses, *three or four times during the day*, the result would have been very different.

If a diaphoretic is given at the commencement of the hot stage, it often produces effects diametrically opposite to its ordinary effect, *i. e.* a violent shivering, followed by a hot stage, proportionally violent. The cases in which diaphoretics are useful, are *not* those in which there is an equally diffused action, but those in which the circulation is *irregular*. They may often be prescribed with great advantage, after blood-letting, when there is a tendency to irregularity of the circulation.

When sweating has commenced, it is necessary to maintain the equality of the circulation, and prevent a collapse over the surface. These indications are best fulfilled by rubbing the sweat off the surface with a rough towel. If the sweating has continued long, and the vessels are much weakened and ex-

hausted, we must moisten the towel with spirits, or aqua ammoniæ, to enable us more effectually to maintain superficial activity. If there is a tendency to coldness, the patient must have a little warm wine to counteract this; and heat is to be applied to the pit of the stomach, or to the cold parts. We are to continue the frictions as long as the sweat continues to flow; and when it has ceased, to put the patient into dry clothes; by this, immediate relief is obtained, and often a state of almost complete apyrexia ensues, even in very obstinate cases.

5. *Cold*, next to blood-letting, is certainly the most powerful remedy we have in inflammatory fevers. Much has been said about those cases in which the application of cold to the surface *should* be used. It may, however, be laid down as a rule, admitting but of few exceptions, that wherever general blood-letting is advisable, cold is equally so. If *local* blood-letting is necessary, the *local* application of cold may be used with advantage. If we abstract blood from an artery, of which the intention is to stimulate, the cold application should be stimulating, (for instance, æther or spirits, &c.) to keep up activity on the surface. In applying cold to the surface, we must always be careful that the heat is steadily above the natural standard, without moisture on the skin. Patients who are afraid of more extensive applications, are often much relieved by merely washing their hands and face with cold water.

There are two methods of applying cold to the surface—by sponging and by affusion. Dr. Wright, who first boldly tried the cold affusion on himself, and recommended it to others, now prefers the sponging mode. "In this way," he says, "you obtain all the advantages of the affusion, without its disadvantages." The sponging has this advantage, at least, that it is never applied except to parts preternaturally hot. In using the cold affusion, unless we are particular in examining the heat at every part, it may be dashed over the body when the temperature of one half of it is below the natural standard, which it is evident, would produce bad consequences.

Cold is a remedy which requires to be used with great caution, either externally or internally, where the system has been previously exhausted by great vascular activity. In such circumstances, a draught of cold water will often produce a general collapse. This often happens in scarlatina, measles, and varioloid eruptions. In these diseases there is very great activity over the surface, and proneness to exhaustion in proportion to that activity. When a collapse takes place, the eruption immediately disappears, and the torpor which supervenes is often so great, that all the most powerful stimuli that can be applied, both externally and internally, will never accelerate the pulse a single beat, nor produce a flush on the skin. I have

seen many proofs of this. The following is a case of the kind, which was successfully treated, in December, 1818, by Dr. Sanders:—John Stewart, aged five, affected with measles; the eruption appeared equal over the whole body on the fourth day of the fever. The doctor prescribed the usual alleviating remedies. But, in opposition to his most express injunctions, cold water was given to the child on the second day of the eruption, the fifth day of the fever; of which the consequences were, the immediate disappearance of the eruption which had till then continued equal, clangorous croup, and every most alarming symptom of approaching death. The doctor was sent for, and the fact of having administered cold water to the child was confessed. He then ordered the use of the warm bath, an antispasmodic enema, a blister to the nape of the neck, and stimulating frictions. These applications had but very little effect: the breathing continued laborious; the pulse quick, irregular, and unequal; the bowels were not moved; and the eruption was but partially restored. Powders of calomel and camphor were given, and next day the bowels were evacuated. Then the following was used:—

℞ Tinct. Digital. Purp. ʒj.
Spirit. Æther. Nitr. ʒiij.
Aq. Menth. Pip. ℥ij. M.

Two teaspoonsful every third hour, until the sixth time, if, before that, the more violent symptoms should not yield; and frictions, with ol. camphorat. cum. aq. ammon. carbonat. to be applied diligently over the whole body.

Before the period of administering the sixth dose, the eruption was fully restored; the heat was equal throughout the system; the pulse full, soft, and regular; and the breathing easy and natural. The child is now perfectly well.

Dr. Sanders mentions, in his lectures, a more aggravated case, wherein the most powerful stimulants had no effect whatever. Such cases show, that cold is a very dangerous remedy in advanced stages of fever, particularly of scarlatina; and that to apply it with safety requires the most minute attention to every symptom.

6. *Stimulants.*—In the commencement of typhus, when only one or two organs are involved in the typhoid state; as, for instance, where the tongue is furred, or the evacuations from the bowels are dark, while the body continues of a healthy colour, and the other secretions are of a natural appearance, it would be highly injurious to prescribe wine and opium in large doses. But in the more advanced stages, when the whole body is verging towards the putrid state; when the skin is of a dark colour, and covered with petechiæ; when the tongue and gums are

thickly covered with a dark fur, and the mouth and fauces are parched; when there is a pungent heat over the surface, and the evacuations from the bowels are of a pitchy darkness—the pulse having a sharp or wiry thrill (a symptom seldom absent in those circumstances), are we to abstain from the use of stimuli, and have recourse to evacuations? I have seen such symptoms rapidly relieved by the use of powerful stimuli applied to the external and internal surfaces; wine being administered by the mouth, and in the form of enema, with beef tea and laudanum, while activity and equal distribution of the circulation was maintained over the surface by stimulating frictions. The sharpness in the pulse indicates merely a want of activity in the venous system, in consequence of which the blood accumulates in that system. Then there is not a sufficient quantity to fill the arteries, and what they contain, meeting with resistance in its passage into the veins, gives the pulse a peculiar wiry feel. The effect of obstructed venous circulation, in producing a sharpness of the pulse, can be ascertained at any time, by merely comparing the arterial beats after a ligature has been applied to an arm, by which the venous circulation is checked, and after the ligature is removed; for, as soon as the ligature is taken away the pulse becomes soft.

Blisters and rubefacients are often very useful, where there are local determinations, and may be applied when indicated in inflammatory or in the commencement of typhus fever. But, in the more advanced stages of the latter, when mortification is apt to attack the *blistered* part, rubefacients are preferable: they may be repeatedly applied to a great extent of surface, at short intervals. I saw a bad case of typhus cut short by the application of a blister to the head, and a sinapism to the spine stretching to the sacrum from the occiput. Perhaps this practice may be considered rather rough; but the peculiarity of the case alluded to required it; and the good effects were manifested in less than an hour after the application of the sinapism. It was kept to the spine for about half an hour: the blister on the head scarcely rose.

Friction to the surface is a remedy of very ancient date, for the cure of fever. Dr. Sanders, of Edinburgh, however, has the merit of having reduced the application of that remedy to scientific principles. He is the first who recommended the use of frictions to the spine in particular, which he was induced to do by a consideration of the morbid changes apparent in the spinal canal of persons who died of fever: he first made use of this remedy in some cases of measles and scarlatina, and the results exceeded his most sanguine expectations. He found that the violence of fever was quickly and greatly diminished by spinal frictions; and that, anticipating fever by such fric-

tions, it was mild in every case, although the eruption was very copious. He made those experiments about seven years ago; and since that time he has had many opportunities of elucidating and confirming the deductions to which he was led. Within these last few weeks he attended near fifty cases of scarlatina and measles; of all which, only one patient died, whose case is briefly detailed above. But that was an instance of scarlatina occurring in a strumous habit, weakened by hectic fever:—the dissection showed that both the spinal marrow and mesenteric glands were in an advanced state of disease. Of fifteen cases of measles I have attended within these three weeks, all recovered perfectly, although several of them were complicated with scrofula; and measles have been extensively destructive, where the spinal frictions have not been used. In those cases, all that was done was merely to keep the bowels easy; to use frictions along the spine, twice or thrice, daily, with common volatile liniment; and, if the eruption was tardy or irregular in its appearance, or if it began to disappear too soon, to extend the frictions over the whole body, till the eruption was established or restored. In one very bad case, wherein the mesenteric glands were enlarged, violent vomiting came on, and purging, mixed with blood. To check these symptoms, opium was added to the liniment, and opiate injections were administered, with wine, internally. Going upon the principle of attacking the nerves at their origins, a blister was applied to the nape of the neck, which completely stopt the vomiting: from that time the case went on well; and, by a careful subsequent exhibition of the muriate of lime, the mesenteric glands were restored to a healthy state. In short, the principle on which eruptive diseases are treated, is always to maintain activity over the surface, and then, the danger of internal congestions is so much diminished, that they do not occur unless there have been obstinate local chronic affections. This principle is equally applicable to variolous and varioloid diseases, although in them we cannot have recourse to frictions, as in the non-protuberant exanthemata; yet we may touch the pustules with stimulating liniment, or with equal parts of aq. carb. ammon. and water, mixed.

Fevers occurring in scrofulous habits are successfully managed by frictions of vol. lin., or that mixed with an equal quantity of volat. oil of turpentine. In them the symptoms, unless complicated with glandular enlargement and suppuration in the thorax or abdomen, are seldom violent; so that depletions are not often necessary, and sometimes are hurtful.

I was lately at the examination of the body of a girl who had died of scarlatina, supervening to mild hectic fever, of nearly twelve months duration. The disease proceeded without any

symptoms to the second day of the eruption, when a sudden collapse occurred. By applying very powerful stimuli both to the external and internal surfaces, the eruption reappeared; but a second collapse took place, and destroyed her. The serous membranes lining the thorax and abdomen, every where presented a fine crimson flush. The membranes of the spinal marrow were of the same hue. In the dorsal region, it was surrounded with a quantity of coagulable lymph; the effects of an old disease in a strumous habit. The mesenteric glands were also enlarged: some of them contained a cheesy matter, and others were proceeding to suppuration. The brain was very firm.

Although these frictions are generally sufficient for the cure of the cases now mentioned, they are too weak for typhus. When fever is of the real typhus character, either as having supervened to an attack of inflammatory fever (the powers of the system being exhausted), or as having occurred in the scorbutic diathesis, it is necessary to use mercurial frictions. The camphorated mercurial ointment, in the proportion of from half a dram to a dram of camphor to the ounce of strong mercurial ointment, is the form in which it is found most effectual. From ʒi. to ʒiss. may be rubbed along the whole spine, twice a day, from fifteen to twenty minutes each time, till the mouth become sore. The patient's strength should be supported during this time by wine in moderate quantity, and by nourishing enemata. Mercury used in this way generally affects the system in from twenty-four to thirty-six hours. In some very obstinate cases it may require three or four days, but very seldom exceeding six. When the constitution is brought under its influence, a very great change instantly takes place. The secretions are actively performed; the tongue becomes clean; the evacuations from the bowels assume a healthy colour; and the patient feels much invigorated. From this time convalescence proceeds rapidly.

Within these three weeks, I saw a woman who had all the symptoms of typhus. The mercurial friction was immediately employed. Next morning she was sitting up; her tongue was clean; her thirst had left her; and she said that she "felt almost quite well." She was, however, ordered to bed, to prevent the chance of a relapse; and in a few days after that she was restored to her usual good health.

I attended, about eighteen months ago, a young man in scarlatina. I saw him first about ten, A. M. The tongue was black, and the eruption was of a dull brown colour. He had other typhoid symptoms. Mercurial frictions were immediately ordered. He was rubbed about eleven, A. M., and again about four, P. M. I saw him about eight P. M., and found

the tongue almost clean, and the eruption of a rosy red colour. The mercury was discontinued, and cuticular activity maintained, by frictions with vol. lin. From this time he did well. These cases are introduced to show how rapidly mercury, so exhibited, affects the system.

When finishing the above, Dr. Sanders handed to me the following communication from Dr. Bute Stewart, of Wisbeach. It was a case of puerperal fever, inducing death three weeks after delivery, and is valuable, as showing the connexion of chronic affections with the fatal issue of fever, and also the state of the spine, particularly in the lumbar region, in cases of fever connected with affections of the uterine system. Dr. Stewart details the examination of the body as follows:—"No turgescence in the head; the thymus gland enlarged; bronchial glands also enlarged, and some of them going into suppuration. Heart and aorta sound; lungs adhering all around to the ribs and diaphragm. Liver adhering to the diaphragm, and enlarged, having a kind of curdy matter in it. Kidneys of a pale colour. Stomach and bowels very much inflamed, and coagulable lymph covering them. Uterus of a dark colour, and well contracted. Much puriform matter in the cavity of the pelvis. The membranes of the spinal cord covered with turgid vessels from the cervix downwards, but more so at the lumbar region. The origin of the nerves in a similar state, and the nerves themselves like red silk cords."

Cases illustrating the decided Efficacy of Cold Affusion in the Treatment of Poisoning from Opium. By Septimus Wray, Esq., Member of the Royal College of Surgeons, and of the Medical Societies of London, Montpellier, and Marseilles.

(From the London Medical Repository, for July, 1822.)

Case 1.—I was called, early in January, 1821, to Mrs. E——, who had, half an hour before, taken about two ounces of laudanum. I found her in bed, in a state of profound stupor. Her pulse was much quicker than natural,—her pupils were dilated. Every means which could be suggested at the time were employed to rouse her from her lethargy, but without effect. Under such circumstances, no internal remedies could be administered. I afterwards had recourse to cold affusion, which produced the most decided benefit. A large bucketful of cold spring water was brought into the room, and a quart basinful was forcibly thrown on the head and chest. It roused her on the first application, but immediately afterwards she relapsed into the same state of stupor. By resorting repeatedly to the

same means, in about ten minutes, I had the satisfaction of hearing her speak. An emetic was then administered, which operated freely. Vinegar and water were given afterwards, and on the least tendency to drowsiness the cold affusion was repeated. I had the gratification, the following day, of seeing this lady perfectly restored.

Case 2.—April 17, 1821. A gentleman, residing in the vicinity of Chancery Lane, took two ounces and a half of laudanum, in a fit of desperation, on account of some losses he had sustained. Immediately after taking it he became sensible of his folly, and informed the waiter of the coffee-house where he was at the time, of the circumstance, who immediately sent for a medical gentleman. An emetic was instantly administered, and, after its slight operation, he was put into a hackney-coach, and driven to Fleet Street, where he had given his address. The coachman, on opening the door, found him lying at the bottom of the coach, in a state of perfect stupor, from which he could not be roused. He was taken in this state to the watch-house, where he was recognised, and thence conveyed to his own house, when another medical man and myself were sent for. That gentleman having arrived some time before me, had employed the usual means, in order to rouse him from the state of coma into which he had sunk. Every attempt produced merely a momentary effect,—when left alone, he dropt into his former condition. As soon as I arrived, I requested that the cold affusion to the head and chest might be tried. A few applications of it, in a similar manner as in the former case, had the effect of removing completely the profound stupor, and the other alarming symptoms which were present. He complained the following day of headache and soreness in the epigastric region;—the former arising most probably from the effects of the opium on the nervous system, the latter from the irritation induced by the strong emetics administered in order to produce full vomiting. These symptoms soon yielded to bleeding and other antiphlogistic means.

Case 3.—On the night of May 12, 1822, I was called to Mrs. W——, Whitefriars, an extremely delicate young woman, about twenty-five years of age, who, at half past ten, had taken two ounces of laudanum, with the intention of destroying herself. Having been at that time particularly engaged, I sent my assistant, with directions to employ the cold affusion, and to administer an emetic, as soon as deglutition might be accomplished. If the symptoms were very alarming, he was also instructed to send for me. Immediately after his arrival, I was again sent for, at his request. On entering the room, he acquainted me that he had considered it too late to do any thing, and, therefore, had not attempted it. She appeared, in

fact, when I arrived, nearly dead. During the preparation for the cold affusion, I endeavoured to rouse her by various external means of irritation, but with no effect. The pupils were dilated and quite insensible to the light from a candle that was presented close to them. The pulse could occasionally be felt in slight undulations, and the body possessed a considerable degree of warmth. The head and chest were raised, and I began by throwing a large basinful of cold water forcibly on the head, which produced an evident twitching in the muscles of the face. By repeating these means, at intervals of some seconds only, she uttered a lamentable scream, much resembling that of a person recovering from suspended animation by immersion. After a few more applications of the affusion, a very strong emetic was administered, with considerable difficulty, but it was no sooner taken than she relapsed into the same state of inanimation, from which she was only restored by the frequent and forcible dashing of the cold water on the head and chest. She was afterwards raised from the bed, and carried up and down the room between two persons, with nothing on but a chemise; and by the repeated employment of the affusion, she might be said to have been in a continued shower-bath. In about half an hour from the exhibition of the emetic, it began to operate slightly. The ejected matters smelt strongly of laudanum. The vomiting was promoted by warm water and an additional emetic. After the stomach had been emptied, vinegar and water were freely administered. Notwithstanding these means had been used, she frequently relapsed into a state of syncope, from which she could only be roused by a fresh affusion. In about three hours from the commencement of the treatment, the pulse acquired greater force, and her appearance altogether showed an evident return of the powers of life. By constant attention, during six hours, to the means already employed, whenever they appeared requisite, I had the satisfaction to see her sufficiently restored to allow her, with perfect safety, a few hours of repose. She only suffered a little from debility, during two or three days.

Remarks.—The first time my attention was drawn to the use of the cold affusion, in states of the system analogous to that which results from the immoderate ingestion of opium, was shortly before the occurrence of the case first related, when called to a patient in furious delirium, brought on by gin drinking; and as there was no possibility of taking away blood or administering internal remedies, I had recourse to the cold affusion, from a full conviction that the derangement was caused by a greater determination of arterial blood to the head, than could at once be carried to the veins, or returned by the lateral sinuses. Believing, also, that a continuation of this state will

produce a distention of the capillary vessels in the brain, almost incompatible with life, owing to their delicate texture, and to the softness of the substance of the brain itself, I conceived the best plan to be employed was that which tends to prevent or overcome that distention.

From the well known power that cold possesses of diminishing arterial action, and of producing constriction of vessels, I was led to its use in that case, and the effects which immediately followed its adoption exceeded my expectations.

The successful employment of the cold affusion in this case of extreme intoxication from a spirituous liquor, suggested its use in the treatment of poisoning from opium. The analogy between the one and the other I considered to be very close; the difference, in my opinion, consisting chiefly in the greater diffusibility of the latter agent, which would give rise to a more alarming degree of congestion of blood in the vessels of the head, after its primary effects had disappeared, than usually follows the ingurgitation of the former agent. The peculiar operation of opium upon the nervous system may also tend to produce a very different effect to that arising from the diffusible stimulants, when taken in an inordinate dose. This specific influence of opium, as well as its more common operation, I consider to be altogether destroyed by the shock made upon the system by the cold affusion: and the extreme vessels become, in consequence of its constringing effects, roused to a healthy and tonic state of action. The event of the three foregoing cases sufficiently proves the efficacy of the cold affusion, in removing the noxious effects of this powerful agent. I have contented myself with giving an outline of their more prominent features. They are the only cases which have come under my observation since the mode of practice was suggested to my mind, in the manner I have mentioned; and although they are few, still they are most important, from their uniformly successful issue. The last case more especially evinced the surprising effect of this remedial agent; for, to a superficial inspection, dissolution had apparently taken place, before any means of restoration was employed.

A Case of Poisoning by Opium, in which the Cold Affusion was successfully employed; with Observations on the Medical Management of similar Occurrences. By JAMES COPLAND, M. D., &c.*

(From the same.)

August 26, 1821.—I was called, about half past eleven at night, to Mrs. B——, a young widow, aged about twenty-four

* This case would have been published much earlier, but having understood that the same agent had been used by Mr. Wray, under similar circum-

years, who had taken, about twenty minutes before ten, an ounce and a half of laudanum. Mr. Carroll, a very respectable practitioner in my vicinity, who had been sent for some time previously to my arrival, and who had requested that I should be called, had succeeded, with difficulty, in administering half a dram of the sulphate of zinc. This, however, produced no effect. Five grains of the sulphate of copper were afterwards exhibited, which, when assisted by irritation of the fauces, caused a slight vomiting. I arrived at this time, and found the following symptoms very prominently marked:—Her pupils were moderately dilated, and her pulse was 140, small, weak, and irregular. Her extremities, especially the hands and feet, were rather cold. She could with difficulty be roused, for a very short time, from a state of profound stupor, and when roused, the constant sighing which was present, and the other symptoms of oppression about the præcordia, sufficiently marked the inability of the heart fully to perform its functions.

I directed cold water to be dashed copiously, and with considerable force, upon her head. The first affusion roused her immediately, and so effectually, that she expressed herself, in answer to my inquiries, to be "relieved from the load and numbness which she felt in the brain." While observing the effect of the affusion, I noticed, that a return of sensibility was introduced by a very deep sigh; and when the cold water fell upon the neck and chest, it was rendered somewhat convulsive. Soon after she was thus effectually roused, copious vomiting spontaneously supervened,—undoubtedly in consequence of the sensibility of the system being awakened, by the affusion, to the irritation of the emetics formerly exhibited. This was promoted until all ingesta were supposed to have been removed. Her pulse was still weak and quick, and occasionally irregular, but rather fuller than formerly. Two teaspoonsful of the following formula were ordered to be taken, in a cup of strong coffee, whenever the oppression at the præcordia and sighing were urgent.

℞ Spirit. Lavandulæ comp. ℥vj.
Liquoris Carbonatis Ammoniæ, ℥ss. M.

The forcible affusion of cold water on the head was enjoined, as soon as stupor supervened, whilst the neck and chest were ordered to be wiped perfectly dry immediately afterwards, and the rest of the body to be kept dry and warm. She was also directed to be placed occasionally between two persons, and to

stances, and with the same intention as it was prescribed by myself, I preferred to wait until I could obtain a detail of the case, or cases, in which that gentleman had employed it. I was induced to this, in order that more conclusive evidence might be thereby advanced, of the influence of a mode of treatment, which, I am confident, will prove a most valuable addition, and a very requisite auxiliary to the methods already in use, for removing the noxious operation of narcotic substances on the animal system.

be walked up and down the room. At one o'clock in the morning I left her, in perfect confidence of finding a still greater progress towards recovery at my next visit.

I visited her again at seven o'clock on the morning of the 27th, accompanied by Mr. Carroll. The affusion had been resorted to thrice since I left her, owing to the supervention of stupor. It had the immediate effect of rousing her, for a considerable time, from her lethargic feeling, and of relieving her from the load she felt in her head.

The powerful stimulant, prescribed at the former visit, had also been taken three or four times.

At this visit the pulse was about 100, and somewhat oppressed; there was no headache; the feet and hands were rather cold; considerable oppression was complained of at the region of the heart, and congestion of this organ was indicated by sensations of fulness and tightness in that situation, accompanied by frequent sighing, and pain in the left shoulder and clavicle. Some pain was also felt in the stomach, which was a little increased by pressure—the result, most probably, of the irritation of the emetics. In order to relieve these symptoms, and more especially the accumulation of blood about the heart, a dose of the stimulating remedy already mentioned was ordered, and blood was directed to be taken from the arm, to the amount of eight ounces. This treatment was instituted with the intention of placing the moving power and the body to be moved, as nearly as possible, in due proportion. The detraction of blood produced slight syncope, which was soon removed by the recumbent posture. She afterwards felt much better, and complained merely of weakness and of a slight pain about the left shoulder, which, however, was greater before the bleeding. The following draught was then prescribed:

℞ Mist. Camphoræ, ℥x.
Magnes. Sulphatis, ℥jss.
——— Carbon. ℥ss.
Spirit. Ammon. fœtid.
—— Lavand. comp. āā ℥ss.
Syrup. Aurantii, ℥j. M.
Fiat haustus ter die sumendus.

She was allowed four hours of sleep after this visit, and afterwards any article of diet, for which she might evince an inclination.

I saw her again the following day (Tuesday, the 28th), with Mr. Carroll. The aperient draughts had operated moderately, and very comfortably. The pulse was much stronger, and fuller. There was no headache, nor pain in any situation. Indeed, with the exception of languor, she felt in her usual health.

Tonics, &c., were prescribed; and on the following day she was able to walk out.

Selected Reviews.

Observations on those Diseases of Females which are attended by Discharges. Illustrated by Copper-plates of the Diseases. By Charles Mansfield Clarke, Member of the Royal College of Surgeons, London. Part II. Octavo, pp. 243. Four Plates. Longman, London, 1821.

" Helleborum frustra, cum jam Cutis Ægra tumebat,
" Poscentes videas;—venienti occurrite morbo."—*Pers. Sat.* 3.

(From the Medico-Chirurgical Review, for March, 1822.)

This work was long promised by the author, and anxiously expected by the profession. The majority of medical works, now-a-days, are written to *procure*, not to *record*, practice, like a surgeon, some 20 years ago, who advertised a book *in the press*, on a particular operation, in order thereby, to get some cases to compose the work, not really commenced in manuscript! When, therefore, a practitioner, of Mr. Clarke's standing and experience, condescends to lay open the results of his observations to the public at large, we naturally attach a comparatively high degree of importance to the publication, as one that will not be likely to lead us astray, though it may fall short of the expectation which we too sanguinely indulge, respecting the productions of men standing high in professional rank and reputation. The name of Clarke, too, has long been associated with obstetric studies and pursuits, the gifted brother of the present author having left an indelible impression on the minds of all his numerous pupils. Alas poor Yorick! He, whose wit so often set the class-room in a roar, is now, in his turn, chap-fallen and silent! A few years more, and those who still cherish his memory, will also sink in the tide of time, never to rise again! But it is useless to repine. The whole frame of Nature and all its minutest parts are undergoing the same revolutionary process, and eternally changing forms, by an irresistible action and reaction of their own constituent elements. The sea sends forth its rains, that soften, and wash, and wear down the hardest rocks and highest mountains; while these debris in time accumulate, and encroach on the dominions of the ocean. Changes and contentions of this kind, are going on in every thing, from the continents and seas of the earth, to the solids and fluids of an animalcula. Man, with all his towering intellect and proud prerogatives, falls into the mysterious circle of transmutation, and nothing is permanent in this world, but the laws which govern its instability!

The first volume of Mr. Clarke's work has now been long before the public, and its contents well known. In the present volume, our author has entered into the consideration of many diseases which, he thinks, have hitherto been but imperfectly discriminated from one another, and treated with little regard to any principles. Mr. Clarke justly observes that, although many of these diseases are invariably fatal, yet the acceleration or retardation of their progress depends upon the knowledge of the practitioner. Many of them, too, are accompanied with great pain—and, whether that pain is to be aggravated or subdued—whether the patient is to be allowed to expire in torture, or slide into eternity with mitigated suffering, will be determined by the information of the medical attendant, and his acquaintance with the means of diminishing those physical ills to which humanity is subject. These are cogent reasons why the medical practitioner should allow no opportunity of augmenting his knowledge to pass unimproved. Neither should he proudly and obstinately rely on his own observations alone, but listen meekly to the suggestions and remarks of others also; for it has been wisely said, that as "the greatest friend of Truth is Time, so her greatest enemy is *Prejudice*, and her constant companion, *Humility*."

Mr. Clarke has comprehended all the discharges from the vagina under the following five heads, viz. Transparent Mucous Discharge—White Mucous Discharge—Watery Discharge—Purulent Discharge—and Sanguineous Discharge.* The *first*, or Transparent Mucous Discharge, has been treated of in the preceding volume, and to that we must refer. Our next subject, therefore, is the—

I. *White Mucous Discharge.* Our author has defined this to be opaque, and perfectly white in colour, resembling a mixture of starch and water, or thin cream, easily washed from the finger, and capable of diffusion in water, rendering the latter turbid.—This discharge appertains to but one morbid state of the uterus, but characterizes that state very constantly. It probably results from a morbid state of the glands of the cervix uteri, for when pressure is made upon that part, the woman complains of considerable pain. The examination of this discharge should be made when the patient has been some time quiet, for the *transparent* mucus, if so abundant as to run over the labia (where there is some degree of friction in walking) becomes also opake and white—probably from the entanglement of air globules with mucus. Such a mixture, however, of air

* Mr. Clarke very properly excludes from his classification, gonorrhœa, for what could be more absurd, than to term that "a disease of *females*," which is equally common to both sexes?

and mucus, will *not* render water turbid. The white mucous discharge is often thicker than cream, having the consistence of glue, corresponding with the mucus separated from the cervix uteri, at the commencement of labour. When possessed of this degree of tenacity, it does not flow spontaneously, but generally when there is some straining at stool. It may, however, by remaining in the vagina, become mixed and attenuated with the mucus of that part.

It is at all times desirable to ascertain the real nature of a vaginal discharge, for the white mucus in question is often mistaken for pus, and thus the patient and practitioner are harrassed with the dread of a formidable disease. Women are most liable to the white opake discharge between the age of 20 and 45. Mr. C. thinks it not unlikely, though he speaks cautiously, that this secretion from the glands of the cervix uteri, may be a forerunner of some of those important diseases of that part, as carcinoma for instance.

"The constitution is rarely affected in this complaint, the action of the heart and arteries is not increased, and the functions of health are seldom interrupted.

"The menstruation is seldom affected, but it proceeds as it was accustomed to do in such persons. In some instances, painful menstruation has been present. Where an examination per vaginam has been made, the external parts and the canal of the vagina have not possessed a more than ordinary degree of sensibility, but upon the finger reaching the cervix uteri the patient has complained of pain, and the uneasiness has been compared to that which has been experienced upon the passage of an evacuation from the rectum; pressure in both cases being the cause of the pain. There is, however, no alteration of structure in the part; no thickening, no peculiar enlargement of the os uteri, no breach of surface; the portion of the vagina which is reflected over the cervix uteri possessing its usual polished and smooth state." P. 11.

Our author is now confident that wherever the white mucous discharge is present, there will be found, on examination, a tenderness of the cervix uteri, which will be removed, or relieved, by the mode of treatment hereafter to be described. Some cases, however, resist all treatment, and at length wear themselves out—in many instances preventing impregnation during their continuance. Here our author relates a case, which we shall give in his own words.

"A lady, about twenty-five years of age, who had been married two or three years, but who had never fallen with child, complained of a considerable degree of uneasiness at the extremity of the back, near the os coccygis; on this account she indulged much in the horizontal posture. She had also been liable for some years to a discharge from the vagina, which, on investigation, was ascertained to

put on a white appearance: the general health was tolerably good, excepting that at the periods of menstruation great pain was felt at the bottom of the belly, which lasted for twenty-four hours, during which time the menstruous discharge did not flow freely, but was pale, and occasionally mixed with portions of a stringy substance. On account of the discharge, astringent injections had been employed by a practitioner, who had been consulted, but without any effect upon the complaint or its symptoms. Tonics had also been exhibited without any advantage. An examination being allowed, the uterus was found unusually low, and the neck of it possessed a much greater degree of sensibility than is common; so that, pressure being made upon it, the patient complained much; but this increased sensibility did not extend to the neighbouring parts, neither was there any alteration in the structure of the parts. This lady had been in the habit of taking much riding exercise, and it is more than probable, that to this cause was to be attributed both the tenderness of the cervix uteri, and the descent of the whole organ. Prolapsus uteri being a very infrequent disease in women, who have not borne children, the patient was desired to lose several ounces of blood from the loins, to live temperately, to avoid riding exercise, to take only a sufficient quantity of walking exercise to keep herself in health, and to inject some tepid water into the vagina. Sexual intercourse was of course interdicted. Soon after this plan was instituted the symptoms diminished. On account of the painful menstruation, some diaphoretic medicines, with opium, and the use of the hip bath, were recommended, and the sufferings at the periods were subdued. At the end of three or four months, the complaints were removed; but the patient did not become pregnant." P. 13.

In some cases the excitement is propagated from the cervix uteri to the neighbouring parts. A young woman, 22 years of age, irregular in life and habits, had borne a child at 18. She afterwards became gradually affected with pain at the bottom of the abdomen, extending towards the back, and from which, she was never wholly free, though it was increased by sexual intercourse. A milky discharge accompanied these symptoms.

"On making an examination, the entrance of the finger was impeded by an encysted tumour, containing a fluid upon the right side of the vestibulum, and extending upwards towards the vagina. The tumour was as large as a pigeon's egg, and was insensible: on carrying the finger towards the uterus, the neck of this organ was found exceedingly tender upon pressure." P. 16.

Our author being desirous of ascertaining how far the loss of blood, attending a removal of the tumour might prove a remedy for the inflamed cervix uteri, made an incision into the parts, and, dissected out the tumour. The hæmorrhage was excessive, but was stopped by plugging the vagina. The wound granulated and the sore healed. The discharge stop-

ped, and the uterine tenderness ceased. Six years afterwards, our author and Dr. Maton were consulted on the case of the same female. The pressing symptom now, was a distention of the bladder, without the power of expelling its contents. The urine was drawn off by the catheter, and on carrying the finger into the vagina, the uterus was found enlarged to the size of an orange, and having fallen backwards into the hollow of the sacrum, its cervix made pressure on the meatus urinarius. In consequence of continued intemperance, chronic enlargement of the liver had also taken place, the skin of the patient having assumed a dirty appearance. Profuse menstruation had come on, and increased the debility. The termination of such a combination of symptoms may be easily prognosticated.

"In the preceding history may be traced the progress of a disease at first shown only by increased action of vessels, which was removed by blood-letting and by rest, for a time: but the flame, though subdued, was not extinguished:—ready to be lighted up, upon the application of those exciting causes, debauchery and intemperance, it was rekindled; and, in all probability, at a period not very distant, will consume the frame which engendered it." P. 18.

Encysted tumours are not unfrequently met with in the neighbourhood of parts where increased action is going on, as in the labia, and in the cellular membrane about the vagina, when local inflammation has existed in the vicinity. A case in illustration, which had been under Mr. Freeman, of Spring Gardens, is related at page 19, which was shortly this. A young healthy woman being married nine months, found her health begin to decline, and the intervals of menstruation to be protracted. Sexual intercourse was painful, and there was a discharge of whitish mucus from the vagina, at the upper part of which, there was constant uneasiness. On examination, a tumour, the size of a walnut, was found on the left side of the vagina, and was lowered by the patient's straining. The cervix uteri was painful when touched. The constant irritation of the parts, kept up general increase of the circulation, and this produced some degree of emaciation. As the tumour evidently contained a fluid, it was punctured with a lancet, and a clear liquid escaped. Treatment for diminishing the local increased action was pursued, and perfect rest was enjoined. In a few days, the tenderness of the cervix uteri was nearly gone —the milky discharge ceased, and the patient shortly regained her health.

Our author gives a case to show that the constitution sometimes sympathizes, though not very often, with the local irritation. A married lady had, for some time, been suffering

from pain at the bottom of the back and abdomen, which continued to increase, for a few days, at the end of which, a violent paroxysm of fever took place, which was repeated in some hours afterwards. Twelve ounces of blood were taken and exhibited the inflammatory appearances. Salts and sena were exhibited, and on the surface of each evacuation, the patient observed a quantity of substance, resembling a solution of isinglass. This was discovered not to come from the rectum, but was squeezed out of the vagina, after the fæces escaped from the anus. When the bowels were evacuated, small doses of antimony and mercury were given, and the patient kept to her room on abstemious diet. The pain now abated, the glutinous discharge from the vagina ceased, and the excitement of the system subsided.

The above cases will be sufficient to illustrate the subject. We shall now exhibit a sketch of our author's therapeutical indications in a general way.

Local blood-letting, by cupping or leeching the back or groins, repeated according to circumstances, forms the basis of the treatment; and where symptomatic fever presents itself, venesection is proper, though seldom necessary. The hip-bath is a useful remedy, and the patient may sit in it twice a day, at the temperature of 90°. Where this last cannot be procured, fomentations to the back or abdomen, are serviceable. Tepid water thrown into the vagina with a syringe, constitutes a direct fomentation to the part affected. The bowels are to be kept in a relaxed state by small doses of magnesia, in plethoric habits;—in languid constitutions, castor oil may be preferable. No drastic or irritating purgatives should be given. At bed-time, it is proper to exhibit some medicine that may determine to the surface, and, at the same time, tranquillize the system. Thus, five grains of Dover's powder, and three of camphor, may be given with a saline draught. If strangury be considerable in degree, a larger dose of opium will be necessary, such as 60 or 80 drops of laudanum, and smaller doses frequently repeated afterwards, with mucilaginous drinks. Whenever the bladder is unequal to the expulsion of its contents, the catheter should be used, lest inflammation be superadded to irritation. We should never trust to diuretics, as nitric ether, and steaming with warm water, in these cases. Although it is not often necessary to keep the patient in bed, yet the horizontal position should be persisted in for some time, and all new causes of irritation avoided.

The disease which most nearly simulates the above is—

Inflammation of the Unimpregnated Uterus. In this, besides the pain arising from local inflammation, which, of course, is *permanent*, there will be occasional pains, which

come on and retire after the manner of early labour pains. Besides, a milky discharge from the vagina does *not* accompany hysteritis, in which complaint pressure above the pubis greatly aggravates the pain.

Hysteritis is not an uncommon disease Mr. C. thinks; nor is it attended with symptoms so acute as might be expected when the unyielding texture of the uterine muscular fibres is considered. It must be recollected, however, that the uterus is not a very sensible part (with the exception of its cervix) and that it is well defended from pressure by the pelvic circle of bones. In the *impregnated* state these circumstances are all very different—there is then a greater extent of inflammation—the nerves and blood-vessels of the organ become enlarged—and the part is constantly under the influence of pressure from the abdominal and diaphragmatic muscles. Hysteritis in the unimpregnated state is most frequently called into action by local violence—and is not an uncommon consequence of marriage. Cold also may originate it. It is attended by a constant uneasiness referred to the pelvis, which gradually increasing, though seldom intensely violent, yet greatly interferes with the comfort of the patient, who complains of pain at the bottom of the abdomen or back. Besides the permanent pain, there are occasionally violent paroxysms of it, at irregular intervals—a phenomenon common to inflammation of most muscular organs, as the stomach, bladder, &c. In the unimpregnated hysteritis, the circulation is seldom much accelerated, nor is there much hardness in the pulse, or increased temperature of skin. The tongue, though not clean, does not show that slimy whiteness so constant an attendant on peritonæal inflammation. The disease lasts a long time if not interfered with, the symptoms suffering an exacerbation before each menstrual period, and a diminution afterwards. In some cases the menstruation is suspended, and the symptoms aggravated. In inflammation of the substance of the uterus, and where the peritonæal covering has not participated, the blood drawn from a vein seldom shows the inflammatory crust, nor is the relief commensurate with the activity of the means, or answerable to the expectations of the employer. Topical blood-letting is more advantageous. Scarifications and cupping glasses to the sacrum—a dozen of leeches to each groin, or across the pubis—and immersion of the hips in warm water, are the appropriate measures. At the end of a week, the local bleeding should be repeated, and in the intervals of menstruation a dozen of leeches to the neighbourhood. Twice or thrice in the 24 hours a fomentation, composed of decoct. anthemidis and tincture of opium, an ounce of the latter to a quart of the former, should be applied, and if the symptoms do not seem dis-

posed to yield, the patient should be kept in bed, and small doses of antimony in a saline draught exhibited once in four or six hours, with three or four drops of tinctura opii. Purging is eminently useful in allaying inflammatory action, and therefore should not be neglected. Salts and senna every second morning are recommended by our author. The diet, of course, should be light and unirritating.

The general state of the health should be attended to, and the regularity of the menstrual secretion. We believe, with our author, that much mischief is daily done by the routine practice of administering what are termed emmenagogues in all states and conditions of menstrual irregularity. Most of these emmenagogues are either general or local stimulants, and consequently cannot be proper in the various conditions of obstructed menstruation. Well may our author observe that "prejudice has occupied the place of science, and popular nostrums have been exhibited, often without, and sometimes with, the concurrence of the practitioner." Every attentive observer knows that, if there be cases of obstructed or suppressed catameniæ, where the fluid is tardily secreted from local or general debility, there are many other cases in which an opposite state of the frame becomes the cause of their production.

"Instead then of resorting to such measures, to the employment of the whip and of the spur in such cases, (where if they do any thing, they do mischief,) let the morbid peculiarities of the constitution, and the habits of life of the patient be taken into consideration; let the first be counteracted, the second be improved; let the sanguine have her excess of fulness diminished, let the debilitated have her powers augmented; in short, let the general health be amended, and the functions of health will be restored." 39.

Accidental circumstances, as the application of cold or fatigue, may have interrupted the menstrual discharge by exciting fever in the system. In this case confine the patient to bed—supply her with cool drinks—open her bowels—and, if medicine must be given, pro forma, exhibit the saline draughts. Under this treatment the feverishness subsides, and with the restoration of health there will be a restoration of the uterine functions.

Luxurious living often induces amenorrhœa by deranging the balance between the wear and tear of the system, and the supply of food, thus producing a plethoric and unhealthy state of the constitution. Here abstemiousness with increase of exercise is the remedy. And should it be inefficient of itself, venesection (full bleedings rather than repeated small ones) with saline purgatives, must be resorted to.

"The patient should not lose less than from sixteen to twenty ounces of blood at once. Under ordinary circumstances it is very

immaterial from what part of the body the blood is taken, provided the vessel is large and the orifice in the vein sufficiently so to allow the blood to escape rapidly; but if there should be any evidence of local congestion, it will be right to remove the blood from the neighbourhood of that part, as from the external jugular vein when there is pain in the head and giddiness." 43.

Lastly, should confinement, breathing an impure air, or poverty of living, have injured the general health, inducing debility and obstruction, and constituting chlorosis, then it will be necessary to invigorate the frame by every means in our power. The stomach must be strengthened, first by the lighter bitters and most digestible food, proceeding gradually to the use of tonics more powerful, as bark and steel. It is only when the constitutional weakness has been removed by such means, that we should have recourse to stimulants. Our author thinks it improbable that there are any medicines which exert a specific effect upon the uterus. In this we cannot agree with Mr. Clarke. There are very few organs in the body which are not peculiarly acted on by certain substances taken into the stomach: thus lytta stimulates the kidney, mercury the liver—and we may pretty securely affirm that the *secale cornutum* acts specifically on the uterus. However this may be, the volatile alkalis, spices, essential oils, and wines are useful general stimulants in the chlorotic state abovementioned; but the cold bath is a precarious remedy, especially when the stomach is unusually weak. The sabina, lytta, black hellebore, many of the resinous gums, electricity, and horse exercise, are stimulants which Mr. Clarke considers as exerting their influence "upon parts in the vicinity of the uterus." One drachm of the tinctura sabinæ composita may be given twice a day in some aromatic bitter draught, and the tincture may be increased to two drachms. Lytta, he thinks, irritates the urinary passages; and, through that medium, the uterine system, a knowledge of which circumstance is available in the case of obstructed menstruation. A blister, therefore, may be applied to the sacrum; or ten drops of the tincture may be taken internally at first, and increased to thirty, in infusion of cascarilla, or any convenient vehicle. As a substitute for lytta, a drachm of the tincture of black hellebore may be taken. Thus, galbanum and aloes possess the power (especially aloes) of stimulating the rectum, and unless given so as to produce this effect, they are of little service in amenorrhœa. They are preferable to the oily or saline purgatives. When excessive irritation about the anus exists, the infusum lini may be injected (℥j.) once or twice a day, the other medicines intermitted for a few days.

In cases of dyspepsia, *unaccompanied by organic disease of the viscera*, gestation, particularly riding, is useful; "not so

when organic changes are suspected to exist; as these have inflammation for their basis, it is evident that whatever excites action in such parts, will augment the mischief." We think this observation requires some modification. We believe that in chronic inflammation of the serous membranes and parenchymatous structure of organs, the succussions of horse, or even carriage exercise, are injurious. But in chronic inflammations of the *mucous* membranes, as of the lungs and bowels, horse and carriage exercise is peculiarly beneficial—a remark as old as Celsus, and confirmed by modern experience. "Gestatio *longis* et jam inclinatis morbis aptissima est, &c."—*Cels.* Dr. Currie, of Liverpool, when threatened with phthisis, found that horse exercise invariably equalized the balance of the circulation and rendered the pulse slower. Hence in those cases of irritability of the heart, accompanied by palpitation or other irregular action, gestation on horseback, or in a carriage, is peculiarly advantageous. With these exceptions and limitations, we agree in the general correctness of our author's precept.

Mr. Clarke makes the same objections, and properly, to tonics and stimulating purgatives, when actual organic diseases of the uterus, or indeed any viscus, exists.

"Under a treatment of a mild character, the occasional application of a few leeches, the administration of a little manna, oil, or magnesia, and small doses of hemlock, and under a diet at once soft and nutritious, but by no means stimulating, the author has known several instances of patients living many years, even when emaciation had taken place to a great degree; when after death, disease (the result of slow inflammatory action,) was discovered, and that to a considerable extent, in the pylorus, the small intestines, and the liver." P. 49.

The remaining emmenagogue is electricity, the powers of which are very considerable in exciting the uterus to vigorous action. By means of it, says Dr. Clarke, "a great number of cases of amenorrhœa have been cured, when no other means had been successful." Like many other emmenagogue remedies, however, it can never be useful till the powers of the system have been restored, and until the general health has been established.*

But to return from this digression to the subject of inflammation of the cervix uteri. Our author observes, that these cases often occur in habits where there is much inequality in the distribution of the blood, and consequent debility—resembling those cases where the glands of the neck, axilla, groins, or mesentery are in a state of chronic inflammation. These

* For a paper on the effect of electricity in amenorrhœa, by Dr. Austin, see the third volume of "Essays Physical and Literary." Ed. 1760.

cases, we know, do not admit of antiphlogistic treatment. The cervix uteri is clearly a glandular structure, and Mr. C. thinks that it will be particularly liable to take on disease in habits which are prone to other glandular complaints. In phlogosis of the cervix uteri, therefore, in such habits, we must endeavour to equalize the balance of the circulation—"an object frequently attainable by the exhibition of tonics, amongst which the Peruvian bark and some preparations of iron, are the most serviceable." The decoc. cinchonæ, and tinct. muriat. ferri are the preparations recommended. Our author confesses, and with reason, that when the balance of the circulation inclines to any particular organ, as the head, the chest, the uterus, &c. it is no easy matter to conquer the disposition. It is no wonder that it should be difficult, because the disorder lies in the vessels of the organ itself, and not in the general circulation; for the heart can have no power of unequally distributing the blood. All irregular determinations depend upon the part where the congestion or plethora takes place.

In conclusion, our author thinks it a great point gained, if we can ascertain the true nature of this disease, of which the milky discharge is symptomatic, for thereby the practitioner is led to direct such measures as may tend to remove its cause, instead of those astringents too often employed on such occasions. It should be recollected that the cervix uteri is the seat of the disease—that this is the most sensible part of the uterus—that it is the part which carcinoma attacks—and that it is highly probable that slow inflammation there may lay the foundation for incipient carcinoma or other organic change. On all these accounts we cannot be too careful to remove so important a morbid process as chronic inflammation.

II. *Chap.* II. *Watery Discharge.* A discharge resembling clear water, containing very little or no glutinous matter. This results from cauliflower excrescence of the os uteri, hydatids of the uterus, or oozing excrescence of the labia. We shall notice them in their order.

Cauliflower Excrescence. Mr. Clarke prefaces the consideration of this subject by some remarks on the great tendency to disease in the organ which forms man's first nidus. Its outer or serous membrane is liable to peritoneal diseases—its muscular structure to irregular actions and tumours—its inner or secreting surface "is more liable to attacks of inflammation than any mucous membrane in the body"—its cervix or glandular structure to the diseases of glands in other parts—whilst the termination of this part in the vagina, at the os uteri, where it is covered by the inner membrane of the vaginal canal, is dis-

posed to take on different forms of disease, one of which forms is that which stands at the head of this chapter.

"A more appropriate name could not have been given to this disease, than 'the cauliflower excrescence.' There is a striking resemblance between itself and a portion of the upper surface of a cauliflower, or a head of brocoli. The surface is granulated, and it consists of a great number of small projections, which may be picked off from the surface, as the granules may be detached from the vegetable. The firmness of the tumour agrees also with that of the plant —here the granules will be large and irregular, there small and equal." P. 59.

From a very fine membrane spread over the surface of this tumour is poured out the aqueous secretion. As the tumour occupies the upper part of the vagina, it is concealed from view; but in some cases where it attained a considerable size, our author saw it, and it had a bright flesh colour. It pours out arterial-looking blood very plentifully, if injured during examination, and sometimes spontaneously, in plethoric habits. This excrescence has little or no sensibility—can never be traced into the cavity of the uterus—is sometimes rapid in its growth, but much influenced by the contractile power of the vagina, being more rapidly developed in married women who have borne children, than in single women. Our author has not been able to trace any cause of the disease, nor any predisposition connected with age or other circumstance, excepting he never met with it in women under twenty years of age.

"Perhaps some small arteries near the os uteri may undergo that morbid dilatation of their coats which is analogous to aneurism in larger trunks, and thus the disease may be produced. Something similar to this takes place in the arterial, or blood-red nævus, but here the surface, being covered by cutis and cuticle, no moisture of the part is met with; but if the surface of such a nævus should be injured, arterial blood escapes." 63.

No preparation of the cauliflower excrescence is preserved in any museum to which our author has had access, and he thinks the reason is, that the tumour almost wholly disappears after death, on account of its great vascularity. This was the case in two or three instances that fell within Mr. Clarke's own observation, where the tumour was perfectly distinct during life, but where, on dissection, nothing but a soft, whitish, flaccid substance, hung down from the os uteri resembling the fœtal portion of the placenta of a calf after maceration in water. We shall here abbreviate an interesting case related by Mr. Clarke, and where the practical indications were very puzzling.

Margaret Pole found herself pregnant of her ninth child in the beginning of 1810, and had a profuse watery discharge from

the vagina, during the whole term of utero-gestation, sometimes tinged with blood, on any trifling exertion. In July, the attendant practitioner found her in labour, and, on examination, felt a large tumour, resembling placenta, in the vagina, with a considerable discharge of blood. Mr. Clarke was then called in. In addition to the hæmorrhage there was constant vomiting, and consequently great exhaustion. The pulse was feeble and frequent, occasionally lost till the action of vomiting roused the circulation.* Mr. Clarke, on examination, found the vagina nearly filled with a substance resembling placenta; but on tracing it upwards he ascertained that, instead of coming down through the os uteri, as in placental presentations, it actually constituted a portion of the os uteri, so that there was scarcely any part of the circumference of this opening to which the tumour was not attached. As the os uteri was very little dilated, it was agreed that light nourishment and the usual remedies for checking uterine hæmorrhage should be exhibited. In a few hours the os uteri opened more, the uterus began to act, and a profuse discharge of watery fluid, tinged with blood, came forth.

"Under this lamentable combination of circumstances, the existence of a formidable and fatal disease, and the presence of labour, the great question was, how the patient should be treated. The head was too low in the pelvis to admit of the child being turned; to open the head would have been to destroy the child, supposing it to be still alive, to afford no advantage to the woman; to perform the Cesarean operation, would have caused, in the deplorably weak state of the mother, her immediate death, and that when it was doubtful whether the child was alive or not." 69.

The tumour being evidently of the cauliflower species, our author naturally concluded that it would become diminished in bulk by the pressure of the child's head. It was therefore determined to wait and to watch the progress of the labour, apprising the friends of the perilous situation of the patient. The labour terminated naturally, but the woman sunk on the third day after delivery.

"The body was examined; and upon cutting open the vagina, the tumour had wholly disappeared, there remaining in its stead loose

* We have had several opportunities of observing the great difference in effect between nausea and vomiting. If a vein happen to be open, no blood will be got during nausea; but as soon as actual vomiting occurs, the blood will spring forth with astonishing force, and completely resemble arterial blood in brightness of colour. From this we see that the action of vomiting, by driving the blood to the surface of the body, (for we observe the whole of the cutaneous vessels gorged during vomiting) frequently relieves internal congestion, or even hæmorrhage, as we have had some opportunities of witnessing. This may explain the reason why emetics have been recommended by practitioners in hæmoptysis and other internal bleedings, and perhaps may show that there is less danger from vomiting even in apoplexy, than is generally imagined. *Rev.*

irregularly-shaped flocculent portions of matter, which arose from every part of the circle of the os uteri. There was nothing else found remarkable; and the uterus was as much contracted as it is usually found to be about three days after delivery." P. 70.

As the tumour under consideration is liable to be mistaken for placenta, it may be remarked, en passant, that a carcinomatous thickening of the os uteri bears no resemblance to the cauliflower excrescence, its size remains unaltered by pressure, and undiminished by death. The cauliflower excrescence and placenta, in fact, differ only (Mr. Clarke says) in name—the structure is the same.

Symptomatology. A perception of moisture first, and then gradually an inconvenient discharge, for which perhaps more abundant lavation with cold water is used, or the family receipt—isinglass and milk, internally. Still the discharge increases, but being unattended by pain or fœtor, the complaint is neglected, until a tinge of blood is perceived, or the cheek begins to change the rose for the lily, with a corresponding loss of strength. Then the alarm is taken. A discharge of blood almost always succeeds sexual intercourse—the digestion begins to be impaired—hysterical symptoms are produced, and all that host of inexplicable phenomena consequent on derangement of the chylopoetic viscera, increasing the patient's stock of bodily and mental misery. Increase of debility is accompanied with decrease of absorption, and, of course, with depositions of fluid in different parts of the body, producing œdema of the feet at night, and puffiness of the face and eyelids in the morning. On this account, hydrothorax may destroy the patient long before she would have been exhausted by the disease itself. An alarming hæmorrhage sometimes induces a fatal syncope. "In many cases (says our author) the practitioner overlooks the disease, contenting himself with treating symptoms, without thinking of their cause." No great degree of emaciation, in general, attends the complaint. On the contrary, our author found, in several dissections, a layer of fat, of considerable thickness, covering the abdominal muscles. How different, (says Mr. Clarke) is this from the case of a patient destroyed by ulcerated carcinoma of the uterus, in which it is as easy to see the form and processes of the bones, as in a skeleton.

"Yet, as in this complaint a discharge is present, as now and then it is fœtid, as a tumour is found upon examination, and as the disease has always, sooner or later, a fatal tendency, it has been too frequently confounded with carcinoma. The prognostic, as to the *ultimate event*, it is true, must be the same; but the terms *sooner* or *later* admit of considerable latitude, and it is a great comfort to be enabled to lengthen life under such circumstances. It is not here, as

in carcinoma, that whilst life is lengthened by art, distress and suffering is eked out with it. A patient labouring under the cauliflower excrescence may pass, nay, she may enjoy, several years of life, if she will be content to make some sacrifices." 87.

The discharge, and indeed the danger, being in proportion to the extent of surface of the tumour, it follows, that loss of tone in the vagina, is an unfavourable sign, as the pressure of a contracted vagina checks the development of the tumour. The danger is less also, when the tumour occupies only a small portion of the os uteri, than when the whole circumference of the opening is involved in the disease.

Therapeia. The enlargement of the tumour will be greatly retarded—nay, there is reason to believe that the size of the tumour will be *diminished* by judicious management—particularly by diminishing the action and fulness of the blood-vessels of the neighbouring parts. Mr. Clarke thinks that, by a steady perseverance in the proper measures, especially if taken early, "the farther progress of the disease may be put a stop to."

Local blood-letting from the region of the sacrum and hips, is a most valuable remedy. The quantity of blood to be taken away, must be regulated by the size and degree of resistance in the tumour, and by the quantity of watery discharge (always a measure of the extent of disease) regard being paid to the strength of the patient.

"At the same time it must be recollected, that if, by the loss of eight or ten ounces of blood by cupping, the quantity of the watery discharge can be diminished from four ounces to two ounces daily, the patient will, at the end of a fortnight, possess more power than if she had lost four ounces of blood by cupping, and the quantity of the watery discharge had been diminished to three ounces daily." 91.

Local bleeding, however, when intemperately employed, may hasten the patient's dissolution. It should not be prescribed when much œdema of the feet is present, nor during the prevalence of much debility—in fact, it should not, at any time, be carried farther, than just to produce the intended effect, as there are many other auxiliary arts in reserve.

"If the patient should be a strong woman, and if the disease has not been of long duration, twelve or fourteen ounces of blood may be taken away: if she should possess less strength of constitution, it may be sufficient to order the removal of six or eight ounces only: and to repeat this once in three weeks or a month. The application of leeches is to be very little depended upon." 93.

Has Mr. Clarke employed leeches to the pudendum muliebre in these cases? We are inclined to believe that they will

be found, in most uterine affections, more serviceable there applied, than either cupping or leeching elsewhere.

All general and local stimuli are of course to be avoided—the diet to be of the mildest kind, as puddings, white fish, and vegetables. Wine and sexual connexion, to be entirely proscribed. The bowels should be so managed, that one easy motion be daily procured. All straining efforts in evacuating the rectum are highly injurious in uterine complaints, but especially in cauliflower excrescence. Fruit taken before breakfast, honey eaten instead of butter, a little manna eaten with a few blanched almonds, or a tea-spoonful of electuary of senna, will often obviate constipation. If these are not sufficient, the sulphate of magnesia in infusion of roses, will be found a mild laxative.

"The enlargement of the tumour may be greatly diminished, and the discharge consequently lessened, by the application of cold to the outside of the pelvis, and by the injection of cold fluids into the cavity of the vagina. Cold water may be applied to the external parts of generation, to the pubis, and to the loins, by means of a sponge; and this may be done, not once or twice only in the twenty-four hours, but several times: by keeping the parts in this way constantly chilled, the blood-vessels will be contracted, and the advantages resulting from such a mode of treatment will soon be made evident, in the diminution of the quantity of the discharge, and in the improvement of the constitutional health." 94.

The recumbent posture ought to be insisted upon. In injecting fluids, care should be taken that the syringe does not touch the excrescence, otherwise blood will flow. "A cylindrical syringe, the diameter of which is about three quarters of an inch, the extremity being rounded off, may be used for this purpose, and the patient should be cautioned not to introduce it farther than an inch, or an inch and a half."

In that aggravated form of the disease, where the tumour nearly protrudes, the patient should lie down upon the bed with her hips raised, and a small quantity of the astringent fluid should be poured in between the labia, with a common butter-boat. When the tumour has actually protruded, compresses dipped in an astringent fluid, may be applied, or a sponge wetted with it, may be lightly drawn over the surface. The astringent injections recommended, consist of sulphate of zinc and water, in various proportions, or alum, in a similar vehicle. Solutions of the mineral astringents in decoctions of astringent vegetables, constitute applications possessed of great power: such as, cort. granat. contus. ℥ss. aq. distillat. ℥xiij. coque per sextam partem horæ et cola, dein adde liquori colato aluminis ʒij. Galls, or oak-bark may be substituted for the pomegranate.

"The efficacy of the latter formulæ in a great measure depends

upon the tannin. As this principle has the power of coagulating albumen, so as to form an insoluble precipitate, it becomes necessary to prepare the patient for a circumstance which may otherwise occasion great alarm in her mind,—the appearance of thin, whitish, or ash-coloured flakes which will come away from time to time. These are frequently thought to be portions of the body, and the agitation of the patient's mind has been very considerable, until it has been quieted by some explanation." 101.

Where irritable vagina exists, a mixture of decoction of oak-bark and linseed tea, forms a less irritating lotion.

In many cases, where the constitution has suffered, the powers of nature require to be recruited, and we must employ some light tonic. The muriatic and sulphuric acids are appropriate medicines. Sulphate of zinc, in such doses as do not excite vomiting, and combined with an essential oil to reconcile the stomach to its use, is recommended as occasionally useful:—say as follows:—sulphate of zinc, gr. xv. extract of hop, ʒj. oil of cinnamon, gt. iij. M. in pil. xv. one to be taken every night.

"The author is justified in repeating, that by a strict attention to and compliance with the rules above suggested, nearly every case of this disease may be made more tolerable; and, perhaps, such a change wrought in the size or the actions of the excrescence, in a few instances, so as to remove all the symptoms." 104.

In some instances the resources of the medical art fail, and then the ligature holds out a prospect of relief, which has now and then been realized. True it is, that the fungus may, and probably will, be regenerated;—but a considerable time may elapse before a tumour of large size forms, and in the interim, by the removal of the secreting surface, the discharge will be restrained, and time will be afforded for the powers of the patient to recruit.

Hydatids of the Uterus. These are connected with the uterus and with each other by small filaments and by portions of substances partly bloody and partly gelatinous. A similar substance is attached to the internal part of the uterus, from which the footstalks of the hydatids grow. The number of these hydatids increasing, the cavity of the uterus enlarges, and when the organ has attained a large size, it seems to be offended by its contents, and then contracts upon them. The causes of this complaint are quite conjectural or rather they are totally unknown.

When the pelvis can no longer contain the enlarged uterus, that viscus rises into the cavity of the abdomen, and may be felt as a circumscribed tumour through the parietes. The function of menstruation is usually interrupted.

"In the examination of a patient labouring under hydatids of the

uterus, the body of this viscus will be found enlarged, and suddenly bulging out from the upper part of the cervix. All these symptoms attend other enlarged states of the uterus; but there remains to be mentioned one other symptom which serves to distinguish this disease from all others, and from pregnancy,—and this symptom is the discharge of an almost colourless watery fluid. This watery discharge is to be distinguished from that which attends the cauliflower excrescence, by the irregularity and suddenness of its appearance and cessation; being produced by a rupture of one or more of the coats of these hydatids, in consequence of the occasional contraction of the uterus upon them, or of any sudden violence, as in the act of coughing or sneezing; whereas the discharge from the cauliflower excrescence being a secretion from its surface is constantly escaping. The fluid watery discharge may be distinguished from those splashes of urine which sometimes come away from pregnant women, by being wholly inodorous." 118.

Sooner or later a parturient nisus takes place—the os uteri opens—the hydatids are expelled by periodical pains—and then, for the first time, danger presents itself in the form of a frightful hæmorrhage. The reason of this last is obvious. The placenta covers only a limited space of the internal surface of the uterus, whereas the hydatids spring from every portion of the cavity.

No means of curing or arresting the progress of this disease have hitherto been discovered. The patient is to be apprized of the nature of the complaint, and the event is to be patiently waited for, treating occasional symptoms as they arise. When the time arrives at which the uterus struggles to unload itself of its contents, then all the skill and energy of the practitioner will be necessary to control the hæmorrhage and sustain the powers of the constitution. Perfect quietude in the horizontal posture should be enjoined, and all stimulating food and drink denied. Cold applications are to be applied to the loins, abdomen, and external organs, and portions of ice, (their acute edges being rounded off by being held in the hand,) may be introduced into the vagina, or into the uterus.

"Let it not, however, be forgotten, that the great remedy for uterine hemorrhage is uterine contraction, and every possible mode of exciting this is to be put in practice. The application of a bandage round the abdomen has sometimes the power of exciting this contraction; but if the hemorrhage should continue profuse, and if any portion of the hydatids should remain in the uterus, an attempt should be made to remove these, in order to produce complete contraction of the muscular fibres." P. 121.

Two or three fingers, or the whole hand, should be covered with pomatum, carefully introduced into the uterus, and carried up between the sides of the uterus and the hydatids, which are

to be detached from the part to which they adhere by the most gentle means.

"The mass, being now included in the hand of the operator, is to be brought out of the uterus, the surgeon recollecting always, in the performance of this operation, that the degree to which the os uteri is dilatable without laceration, is in proportion to the size of the whole uterus, both in pregnancy, as well as in this disease. So that, supposing the uterus in this disease to be enlarged to the size of that viscus in the sixth or seventh month of pregnancy, the whole hand of the operator may be, if necessary, introduced through the cervix; whereas, in smaller dimensions of the uterus, if any attempt is made to introduce the whole hand through the cervix, however carefully it may be attempted, a laceration of it may ensue, and thus the patient may be involved in a new danger." P. 122.

The expulsion over, and hæmorrhage restrained, the constitution must be invigorated by suitable means—particularly by the cinchona and mineral acids.

Another variety of this consists in a single cyst which distends the uterus. Our author has never met with a case of this kind. We need not therefore do more than refer to the usual sources of information on this subject. In the 34th and 35th sections of Burn's *fifth* edition, the reader will find information and references, on single and conglomerated hydatids.

Oozing Tumour of the Labium. In this, the discharge arises from the surface, or rather from the interstices of the tumour. The fluid is of a watery nature, and sometimes very abundant in quantity, being renewed almost immediately after the surface has been dried by a napkin. Blood never issues from the tumour, so that it has no analogy with cauliflower excrescence. The tumour is sometimes so large as to occupy the whole of the labia, extending even to the mons veneris. It seldom projects more than a line or two above the plane of the surrounding skin. The colour of the tumour varies little from that of the cuticle of the neighbouring parts.

"In the immediate neighbourhood of the tumour œdema is occasionally met with, but the tumour itself is not œdematous; soon after the surface of the tumour has been wiped quite dry, a watery fluid begins to ooze from it, and to form drops, which, having become large, at length run off, and keep the surrounding parts in a state of constant humidity; sometimes soreness and excoriation take place, as upon the upper lip, when the secretion from the nostrils is increased, but the tumour itself is seldom rendered more sensible." P. 129.

The secretion from this tumour corresponds, in appearance, with that from the cauliflower excrescence. The disease having begun, continues to enlarge, and insulated patches of it appear

in the neighbouring parts, at length running into each other. Within the author's knowledge the complaint does not attack young women. The principal inconveniences of this disease are, an itching, sometimes preternatural sense of heat, and a watery discharge.

"When excoriations of the neighbouring parts are present, or an erysipelatous blush appears upon them, more advantage will be derived from the internal exhibition of the cinchona in substance, than from any other medicine; but no impression will be made upon the disease itself by this valuable remedy, and even the symptoms above mentioned will frequently recur, and call for the employment of the same remedies." 133.

A nutritious diet, and a moderate allowance of wine should be prescribed. External applications may mitigate but never cure the complaint. Common starch-powder repeatedly sprinkled over the parts till it cakes upon them, is a very efficient remedy; but it will be necessary to keep the patient in the horizontal posture during its use—a position indeed which has a beneficial influence in itself.

"A mixture of starch-powder and cupri sulphas, very finely levigated, has been found serviceable; or a solution of cupri sulphas, or of argentum nitratum, may be used. A solution of gum arabic in decoctum quercûs may be tried. Cold water is also a valuable remedy, and there are no cases in which it will not afford much temporary comfort." P. 135.

Perhaps the most effectual applications are of a spirituous nature. Strong new port wine has afforded great relief; and when this has failed, brandy, or arquebusade may be employed, or even alcohol. The complaint, upon the whole, is very rare.

Involuntary Discharge of Urine. Discharges of the urinary secretion, whether occasional or permanent, are troublesome, and often ulcerate the parts over which they pass. At the close of pregnancy, and in other enlargements of the uterus, the bladder can contain but small quantities of water, and this is often squeezed out in the act of coughing, laughing, or straining. For this case there is no remedy. Flat sponges sewed into the folds of a napkin should be constantly worn. If the inability depend on local or general debility, applications of cold water, bark, and the mineral acids, &c. may be used. If these fail, the lytta may be cautiously tried, or electricity. When all these are unsuccessful, mechanical means of compressing the meatus urinarius must be employed.

When a communication exists between the posterior part of the neck of the bladder and the anterior portion of the vagina,

a most distressing case of involuntary discharge of urine will be the result.

"When the mischief has arisen from laceration or sloughing, it may be worth while to introduce into the vagina a large thin globular pessary, made either of wood or (which is better) of silver, perforated by a great number of holes, capable of containing a large piece of sponge. At the lower part of this pessary there should be a circular opening, through which sponges may be removed occasionally; and for this purpose a piece of string may be attached to the sponge, which, being emptied of the urine contained in it, may be again introduced into the cavity of the pessary, without the removal of it from the vagina." P. 144.

The above extract has brought us to the *third* and last chapter of the work, which, however, occupies nearly half the volume. It embraces the important class of *purulent* discharges, and will furnish a short analytical article for our succeeding number.

Of what use would it be to offer an opinion of a work, of which we have presented so copious an analysis? Many hundreds of our readers can appreciate the value of Mr. Clarke's practical precepts far better than we can. The wide experience, the known talents, and the unquestionable accuracy of Mr. Clarke, stamp a great value upon any work emanating from such a source; and we are happy in having the opportunity of selecting a part of our literary freight, this quarter, from a granary of such rich and precious materials. These materials are now sailing on the four winds, consigned to multitudes of unknown purchasers. We wish them a prosperous voyage, and bespeak for them a kindly reception.

Sive per syrtes iter æstuosas,
Sive facturus per inhospitalem
Caucasum, vel quæ loca fabulosus
Lambit Hydaspes.

An Inquiry into the Opinions, ancient and modern, concerning Life and Organization. By JOHN BARCLAY, M. D. Lecturer on Anatomy and Surgery; Fellow of the Royal College of Physicians, &c. &c. of Edinburgh. Octavo, pp. 542. Edinburgh, 1822.

(From the Medico-Chirurgical Review, for Sept. 1822.)

Our readers will not accuse us of much propensity towards metaphysical disquisitions. Our reasons for abstaining, in general, from such lucubrations, are founded on a conviction that, in all investigations respecting the *nature* of life, and the *destiny* of the soul, the fool and the philosopher—the cobbler

and the craniologist—the merry-andrew and the metaphysician, start upon perfectly equal terms—with this exception—that the creed of the philosopher is always more absurd than that of the fool. The truth of this position, paradoxical as it may appear, will, we apprehend, be made abundantly manifest in the course of this article. Discussions on life and organization have, of late, occupied so much the attention of the public, that we are reluctantly drawn into the vortex—yes, a *vortex* or eddy, *off* the general stream of medical science, in which, however long we whirl about, we can never make one foot of progress. We shall invariably come back to the point from whence we started—few of us, we fear, made much better or wiser during our circumgyrations! We sincerely wish indeed, that physicians and physiologists, at least, had confined their researches to the laws which govern and the diseases which assail the human body, leaving the mortality or immortality of the soul to philosophers, metaphysicians, and divines:—or, if they *did* enter into the investigations of mind, that they would acknowledge their own ignorance when their faculties could go no farther, instead of dogmatically pronouncing in the negative, on doctrines generally received by mankind, and which appear necessary to the welfare of society, as well as the peace and happiness of individuals. No human being on this earth ever had, or ever will have, an atom of proof, (independent of Revelation,) respecting the nature and ultimate destiny of the soul. Those, therefore, who deny its future existence, are just as dogmatical and presumptuous as those who maintain it—with this difference, that they broach a doctrine repugnant to the best feelings of mankind, and utterly subversive of all those checks and restraints, which reason, religion, and morality, would impose on the turbulent passions of our nature. If we are placed here irresponsible to any other tribunal than those of human creation, we must be dolts indeed to curb even our most vicious propensities, farther than what may just keep us clear of the gallows! Nay, if the indulgence of a crime be thought to convey more pleasure, than a swing at Tyburn pain, we know not on what principle the Materialist should hesitate to suffer the one, for the enjoyment of the other. In fact, this is the doctrine precisely, on which the most abandoned of the human race act every day;—it is the doctrine which is too often instilled into the tender minds of medical youth along with their physiological knowledge—it has been publicly taught in our schools—boldly pronounced in our orations—and fearlessly published in our books! How is this to be remedied? Certainly not by attempting to prove the truth of contrary doctrines: for, as we said before, we have no proofs, pro or con, but in Revelation, and this will not be listened to by the Materialist. The only

remedy, in our humble opinion, is that which Dr. Barclay has adopted—namely, an exposition of the absurdities, contradictions, and chimæras, of the philosophers themselves. It will be seen in this exposition, too, that the reigning doctrines of the day, among our modern philosophers, are nothing but new versions—indeed, generally but mere repetitions of the visionary speculations engendered in the brains of their predecessors, even from the earliest ages. Stripped of their novelty, and devoid of solid foundation, as all such speculations must ever be, these doctrines will, we hope, gradually sink once more into oblivion, and men, feeling their own ignorance, and seeing the presumption of these illuminati, will come back again to the sober path of reason, and the steady light of religion and virtue. It is lamentable, however, to think that, some men, whose talents, genius, and acquirements, might have enabled them to diffuse the blessings of science and the charms of literature over a grateful land, have chosen, with fiend-like satisfaction, to shine only to mislead—to flash only to destroy. "Their beams," says an able writer, "are a beacon set up by the Genius of Evil —a beacon that would warn us *from* that which is *safe*, only to decoy us *to* that which is *dangerous*—having a false light to amuse, a syren to allure, a Circé to intoxicate; lest we should perceive, that the fatal coast is covered with wrecks."* Under these circumstances, we hope we shall be excused, if not commended, for dedicating a very considerable portion of our present number to the review of a work, which is calculated to improve the humble by the profundity of its erudition; and repress the presumptuous by the poignancy of its satire—to strengthen the good man's belief in a future state of existence, and weaken the sceptic's overweening confidence in the powers of his own unassisted reason.

The analysis of a work like this, is not an easy task; and we are sure the worthy and learned author will excuse us, if we frequently endeavour to convey the spirit of a passage in our own language, rather than in an extract, since habit has, we think, given us the power (a very humble pretension) of sometimes lessening the number of words, without weakening or obscuring the sense.

In a short preface to the work before us, Dr. Barclay informs us of the reasons which gave rise to his present inquiry. These were, the differences of opinion which exist respecting the nature of man—some thinking that such a mechanism may have been produced without a divine constructor—others not. The object of the present work, therefore, is to state the arguments on both sides—to examine their legitimacy and force—to offer

* Coulton's Remarks on the Talents of Lord Byron.

his own opinion—and then leave the reader to judge for himself.

As young men, our author justly observes, are naturally inquisitive respecting the laws of organization, and are frequently led to form hypotheses, on slender grounds of information, an inquiry like this may be useful to them, by showing them what ingenious and learned men have written on the subject. It may probably tend to moderate the excesses of vanity, and prevent them from betraying their ignorance, by publishing as new, "opinions which have repeatedly been published before—have repeatedly been obsolete—been repeatedly revived—and repeatedly become obsolete again." On this subject, he observes, few original opinions or arguments upon either side have been advanced since the days of Lucretius, or even of Aristotle. The novelties are chiefly those of expression or manner, with some attempts at illustration by aid of the microscope and chemistry; but the impelling motives, the leading opinions, the chief arguments, have scarcely suffered any change through a series of centuries.

The work is divided into four chapters, each subdivided into numerous sections. The first chapter contains the philosophical and popular opinions of the ancients concerning the nature and variety of animating causes, and the principal arguments employed to prove that these causes originate in matter:—the second chapter gives an account of some very vague and general terms employed in physiological investigations:—the third is on the opinions of those modern physiologists who ascribe the phenomena of life to mechanism and the effects of chemical affinities:—the fourth exhibits the opinions of some distinguished ancients and moderns who have ascribed organization and the other vital phenomena to an internal animating principle.

CHAP. I. *Sect.* I. In all languages there are terms to express those two remarkable states of organized bodies—the *living* and the *dead.* The clown can distinguish these as clearly as the chemist. There is a kind of intermediate state, in which plants and animals are occasionally, and their seeds and eggs generally, found. In these cases the obvious functions of life are partially or totally suspended—but the suspension does not, as in the dead state, arise from derangement of the system—it wants only some auxiliary agents, as heat for instance, to bring the powers into play. The living state is the most remarkable of all, and has naturally excited the attention of philosophers in every age and country.

Sect. II. This exhibits a very summary view of ancient opinions respecting vital phenomena. The Greeks, in general,

ascribed these phenomena to the *psyche*—in Latin *anima*—in English, *soul*, or vital principle. Their opinions, however, were very various. Democritus, Epicurus, and the Stoics, thought it corporeal, but could not agree as to its substance. The Stoics asserted that it was warm ignited air—Hippo, that it was water—Democritus, that it was fire—Heraclitus, that it was a vapour or exhalation from the body!

The notions of those who believed the soul to be incorporeal, were, if possible, more absurd than those of the Materialists. Thales maintained that it was always in motion, and itself the cause of motion—Pythagoras, that it "was a self-moving monad" —Plato, that it was something conceivable only by the understanding, moving according to harmony—Aristotle, that it was a fifth essence or element distinct from any of the other four—others, that it was an emanation from one universal soul, or anima mundi. It is needless to load our pages with the doctrines of transmigration and the plurality of souls—as the opinion of Plato, for instance, that there was a soul for the belly, another for the chest, and a third for the head. We shall therefore be very concise with the *third section*, on different souls in the same body. This opinion became very early prevalent. Empedocles gave a rational and sentient soul to every animal—the first derived from the gods, the second from the elements. The vulgar creed that ghosts or apparitions are sometimes seen near the place where the body lies, is well known. Lucretius, though he admits the existence of these *simulacra*, asserts that they are mere pellicles or membranes cast off from the surface of bodies, like old sloughs from grasshoppers.

> "Quæ quasi membranæ summo de corpore rerum
> "Dereptæ, volitant ultro, citroque per auras."

This is a pretty early specimen of the credulity of Sceptics.

Sect. IV. *Pre-existence of Souls.* The notion of a future existence, however it may have got originally into the mind, seems, from the very beginning of the human race, to have constantly followed them wherever they emigrated or settled —nay, it even seems to have sprung, as it were, spontaneously, in every soul the least elevated above that of a brute. The idea of a *pre-existence*, however, has been limited chiefly to contemplative minds engaged in philosophical research. It occurred to Plato, who supposed the soul to be different from the body, and its innate ideas but the reminiscences of former impressions. It occurred to Pythagoras and the eastern sages, who believed in transmigration; and it occurred to all who believed that substantial entities are eternal, and that thought and sensation are not to be considered as the accidents of matter.

Sect. V. *Future Existence.* The opinions among the ancients, respecting this state, was almost without number. Some doomed the soul to wander about without a body; but as that state was difficult to conceive, it was generally allowed some kind of tabernacle, or at least some kind of form. Thus equipped it was sent to the clouds—to the stars—to happier regions above—to regions in the bowels of the earth—or through other animals, in a series of transmigrations. Such were the various opinions of the ancients concerning the soul or vital principle. We do not conceive that these opinions make either for or against the existence, present or future, of a soul. Those who would deny its existence because those who believe in it are not agreed in opinion, might, upon this principle, reject almost every branch of philosophy.

Sec. VII. *Organism.* All opinions respecting the vital phenomena have rested on one of two bases—a certain organism of the materials of which the visible structure is composed—or a principle totally distinct from matter, receiving a distinct appellation in all languages.

The observations and reasonings which lead to organism or materialism, say its supporters, are not only natural, but the conclusion almost unavoidable. To what do we owe the difference of sounds proceeding from the flute, the violin, the harp, but to difference of structure—to what can we attribute the difference of functions in the animal system, as seeing, hearing, smelling, but to differences of structure in the organs by which they are displayed?

An egg, say they again, does not exhibit any thing analogous to vital phenomena. The eye cannot trace in it any thing but an organized structure. In this state, regulate the temperature so as to prevent the derangement of its parts, and it will continue for months or years in the same inert condition. But after these years apply the degree of heat which the mother communicates while hatching, and the embryo within will begin to grow, to move, to live—and at last will exhibit all the instincts, appetites, and passions belonging to the species that first gave it birth. Observe, say they, the swallow or other hybernating animal. It grows torpid and apparently dead in the winter. On the return of warmth we see it begin to move, to live, to seek a mate, and propagate its kind. What is there here, they ask, but organism and heat? If there be any other principle, who is the man that has seen it, heard it, touched it, or tasted it? No man. All other causes, then, are merely imaginary. After seeing what we have seen, let us remain content with the obvious causes, and leave enthusiasts to hunt after myste-

ries, or indulge in fanciful hypotheses about spirit, and life, and soul.

Should it be asked what is the cause of those processes of organization which produce the organism that produces life—the answer is natural, easy and obvious. "It is," say they, "a number of the particles of matter of certain kinds, in certain proportions, and in certain temperatures, combining together by their chemical affinities." Mighty clear certainly! After stating a few of the many wonderful combinations and changes effected by chemistry, they ask us to ascend yet a little higher, and mark the *animalculæ infusoriæ* that spring up in myriads in vegetable infusions—the *fasciolæ hepaticæ* growing in the livers of sheep—the various *vermes* in the intestines of man—the thousand species of *lice*, each peculiar in its own species of animal or plant—all without origins, without parents, without sexual intercourse. View these facts candidly, say they, and tell us to what you can ascribe living organized systems of matter, but to chemical processes.

"In what other light can we possibly view the sexual intercourse than merely as a circumstance which is often necessary to favour these processes at their commencement? Nay, in what other light can we possibly see even man himself than as a species of chemical compound, whose particles at the last hour of dissolution must again return each to the element from which it came; while the fabric they composed, like the flower of a season, or the insect of a day, after leaving perhaps another in its stead, shall, with all its instincts, appetites, and passions, and with all its reasoning and boasted powers, that were the result of its temporary organism, perish for ever?" P. 30.

That such were the commencement and such the termination of human existence, many may wish rather than believe—and a few may believe rather than wish; but those accustomed to reason and reflect, will not place implicit reliance on observations that are carelessly made, and assertions that are so confidently uttered. Even granting that there is nothing in the universe but matter, where are the *kinds* that organize animals and plants—where the *qualities* by which they organize particular structures? We can readily comprehend how the same materials, whether earth, wood, or stone, may be made to assume an infinity of forms; but the materials have nothing to do with the organization. It is at this day invariably acknowledged that every part of an animal or plant dug up from the bowels of the earth, must once have lived—and that some one of the vital phenomena must have preceded and even been necessary to its organization. It seems, therefore, to be the natural and the necessary conclusion, that so far is organism from being the *cause*, that it is rather the *effect* of vital phe-

nomena; and hence it follows that the materials of food and drink, like the kinds of materials composing an automaton, may enter into myriads of structures, having no more concern in regulating their size, proportions, or forms, than the timbers have in devising the plan of a ship, into which they may enter —with all their chemical affinities it is true—but still merely as the materials, and not as the architects or contrivers.

In respect to the seeds of plants and eggs of animals, as they are evidently as much organized structures, and as much the effects of vital phenomena, as the plants and animals from whence they sprung, it is but a silly and puerile sophism to first represent them as extremely minute chemical particles, and then, taking advantage of their chemical affinities, say that they afterwards produce animals and plants. The fact is, they are animals and plants themselves in their incipient state of existence —and this sophism, if closely examined, means no more than that plants and animals, however young and diminutive at their commencement, grow older by time, and larger by nutrition.

We must pass over the succeeding three or four sections on the "origin of things," as explained by Anaxagoras, Ocellus Lucanus, Democritus, and others, in order that we may come at once to the great arch-Atheist and Materialist of antiquity, Lucretius, the expounder of the atomic doctrines of Epicurus. This poet embraces with enthusiasm the views, and opposes the enemies of Epicurus. He combats every objection with all the acumen of the logician, and the animation of the poet. He pours forth his whole genius and talents to illustrate, support, and recommend the favourite atoms of his favourite philosopher.

Yet with all the confidence which he has in these atoms, he never brings them to the test of observation or experiment. He never pretends that he has seen them, or indeed that they can be seen. He bestows on them many and various shapes —but never explains how their shapes co-operate to form an animal or plant—nor how, amidst all their various combinations, they never by chance light upon any thing in structure, materials, or external form, exactly resembling any work of art, He asserts that, even in his time, many animals were formed by showers and sunshine out of the mud.

"Multaque nunc etiam existunt animalia terris,
"Imbribus et calido solis concreta vapore."

Here the showers and sun must have been the father, and the earth the mother of these new animals.* But how come these parents to bring forth young so unlike their kind?—why did they not bring forth young earths and suns? Instead of answering these questions, the poet is only busied in accounting

* —— "E terra quonian sunt cuncta creata."

why mother Earth was not so fruitful in his time as she had been formerly. And what were the reasons?—very clear and natural ones. "The times of child-bearing," says he, "are always limited; and being old and exhausted, these periods in mother Earth were approaching to a close."

"Sed, quia finem aliquam pariundi debet habere
"Destitit; ut mulier, spatio defessa vetusto."—*Lib.* v.

Yet, to another question, how came the world so advanced in age, to be such a novice in the arts and sciences? He replies, somewhat forgetful of his former statement, that, from the little progress which it had made in the way of invention or improvement, it must certainly have been of very *recent origin* at the time he wrote—in fact, only in the course of its education!

"Verum, ut opinor, habet novitatem summa recensque
"Natura mundi est; neque pridem exordia cepit.
"Qua re etiam quædam nunc artes expoliuntur;
"Nunc etiam augescunt."—*Lib.* v.

It appears from Lucretius that Mother Earth was but a bungling artist herself at first, producing monsters of very singular appearances, incongruous forms, and with unnatural adhesions, &c. A superior authority therefore interposed, and took the management out of her hands. This Being, who belonged neither to atoms nor to elements, has been a very convenient substitute for a God, both in ancient and modern times. Her name is Nature—a singular personage of the feminine gender, that is always generating, like Mother Earth, but is never seen generating after her kind. She is invested by our modern Atheists with extensive influence, incessant activity, and uncommon prudence, having obtained the direction of the atoms and elements in all their operations, seeing into futurity, preventing what she does not approve, creating and bringing to perfection all living things—and all this agreeable to *laws* imposed upon her by a higher power, which some call *Fate*, and others Necessity. In this part of the theory, Lucretius seems to have lost all confidence in the eternal rambling of his atoms. He thinks now that all must be regulated by diversities of *seeds* or *organic particles*, endowed each with a peculiar *secreta facultas* that makes them both living and organic. He deduces the soul also from a seed, and makes it display in its growth and evolution the species of seed from which it had sprung. Hence he concludes that it is from radical difference in the faculties of the soul, and not difference of organization in the body, that the lion is fierce, the fox crafty, and the stag timid.

As for the opinion that the soul or animating principle organized the body, Lucretius rejects it—*because* he cannot comprehend how it could be.

——— At, qua possint, via nulla *videtur:*
Haud *igitur* faciunt animæ sibi corpore et artus.

Aware, however, that he might fairly be asked how his *semina* were originally organized, he is sadly perplexed, and merely informs us that "heat and air and the invisible power of the wind, being mixed with that *active principle* that distributes motion and sensation to them all, they together constitute but one nature." As for the origin of the active principle, he confesses that it is utterly concealed in the innermost recesses of the body, whence it is latently diffused through every member, being the soul of the soul, the strength of the mind, and the energy of life—in short, that it reigns as a sovereign throughout the body, and *is without a name.*

"Sic tibi nominis hæc expers vis, facta minutis
"Corporibus latet."

It is to this *nameless something* we owe the pulsations of the heart, the sensitive powers of the organs, the pleasure or pain felt in the nerves or bones.

Lucretius observed of old, (as the philosophers have observed in our own times,) that as the world had been long in a state of terror or dread of incorporeal beings, the principal object in writing was to rescue mankind from their vain apprehensions, by showing that all things are corporeal and composed of atoms—that those atoms will in time separate and be dispersed—and that even the soul shall cease to exist or feel. He seems anxious to inculcate the notion that the world has been arranged, and the organism of plants and animals constructed, without any view to their functions or uses, "and so men," says he, "should avoid the error of supposing that the eyes were made to see, the feet to walk, &c." No, says he, the organs existed *before* they were used—consequently they suggested the uses, and no uses could have been previously designed for the organs. He distinctly saw that a contrary opinion would lead to an idea that the works of nature, like the works of art, must be the effects of design and intelligence—an idea that would be utterly subversive of his atheistical hypothesis. The absurdity, however, of the doctrine that the organs suggested their own uses, is too obvious to require a word. The credulity, too, of this arch-Sceptic is only equalled by that of some of our modern Materialists. Thus he cannot believe in the immortality of the soul; but he believes in the existence of *simulacra*, thrown off from the surfaces of bodies, and continuing in separate states, constituting ghosts. Again, he strenuously endeavours to prove that, from their inconceivable minuteness, the first principles of things are *invisible;* yet he confidently ventures to determine their shapes, properties, magnitudes, &c. In a moment afterwards, he is such a stickler for

the evidence of the senses, that all are enthusiasts or dotards who trust to any thing else! "In this miserable shuffling," says Dr. Barclay, "he is often followed by the modern Materialists, who, without producing the evidence of sense for their own hypothesis, arrogantly demand such evidence for whatever hypothesis is opposed to theirs." We do not agree, however, with Dr. Barclay, in supposing that Lucretius, because he reposed no hopes on the promises of religion, "could only view it through the medium of fear"—and that therefore "his whole reasoning is employed to remove its impressions." We believe that the great body of the Sceptics, both of ancient and modern times, had, and continue to have, neither hopes nor fears. Indeed, we do not see how a cultivated mind, that has no hope in the promises of revelation, can have any dread about futurity. They have a curse attending them, however, which is perhaps far worse than the occasional terrors of the religious enthusiasts. It is that melancholy, dreary, depressing prospect of *annihilation*, which intrudes itself constantly on their thoughts, damps every enjoyment of *this* life, and precludes, of course, all anticipation of another! There is not a Sceptic on this earth who does not envy the *terrors* of the most ignorant fanatic—*because* he well knows that with those terrors are mingled bright hopes and cheering illusions (if indeed illusions) of another world. These are excitements which can never thrill the cold heart of the Sceptic. His soul is like the stagnant lake—it is never agitated by

——— "That pleasing hope, that fond desire,
"That longing after immortality!"

which prevents life from becoming insipid. He is, in fact, an object to be pitied, in more senses than one—to be pitied if he be in the *wrong;* on account of that futurity which he disbelieves—to be pitied if in the *right;* because, in this case, if in any, "ignorance is bliss," and it is manifestly "a folly to be wise."

We can form some excuse, however, for the apparently honest indignation which Lucretius expresses against the religion (superstition) and priests of his time, when we consider how much the people were immersed in ignorance, and the priesthood in knavery. We must also confess, with shame and sorrow, that religion, or rather superstition, has too often, even up to the present moment, been perverted to the worst of purposes, by the designing, fanatic, ignorant, and tyrannical part of the world. The notions, as Dr. Barclay justly observes, of a Deity, of a watchful Providence, of a future state of rewards and punishments, may be, and have been, *perverted* to the worst of purposes. Instead of producing peace upon earth, they have too often been made the pretence for drawing the sword, for set-

ting the son against the father, the daughter against her mother, and for making a man's household his foes.* But surely, as our author properly adds, the perversion or abuse of a principle can never, in the eye of genuine philosophy, be made an objection to the principle itself. The alternative which is here recommended, of disregarding all notions of religion, was observed by the greater part of the ancients to be attended with still worse consequences than any of the systems of Pagan theology. Epicurus and Lucretius themselves acknowledge that some notion of divine beings is quite irresistible, and that it will spring up in the human mind, as a thing indigenous, without the adventitious aid of education. "Intelligi necesse est, esse Deos, quoniam insitas eorum vel potius innatas cogitationes habemus,"—*Cicero.* The attempt, therefore, to eradicate this notion from the human race is foolish, mischievous, and must, in the end, prove abortive.

We must pass over entirely the *second* chapter of our learned author's work on nature, the elements, forms and qualities, chance, fate, necessity, matter, &c. &c., and also a great portion of the third chapter, detailing the opinions of Paracelsus, Fray, Darwin, Leibnitz, Priestley, Haller, Buffon, Needham, Maupertuis, Robinet, Blumenbach, Gassendi, Cuvier, Lawrence, and Cabanis, respecting life and organization. We cannot afford space for the notice of more than a very few of these writers.

Blumenbach.—The idea of an eternal being, omnipotent, and omniscient, who watches over the affairs of men, continues their existence beyond the grave, and renders them accountable for their actions in this world, is not equally cherished by all. It is, however, a very general idea, and seems so instinctively implanted in our nature, that no devices have hitherto completely eradicated it from the minds of men—perhaps even of the most sceptical. That there is some invisible agent who superintends the universe all are willing to allow—but all are not willing to attribute to this agent intelligence and moral attributes—or that he will make them responsible for their motives and actions. They are therefore inclined to fancy other agents more suitable to their ideas, or perhaps to their wishes, such as Nature, Fate, Chance, Necessity, or certain invisible energies or powers diffused throughout space, which operate methodically, yet without intelligence or moral attributes—and, if not *material*, are traceable to no other cause that either is or ought to be named. It is to one of these abstract powers that Blumenbach has ascribed the organization of animals, bestowing upon this child of his fancy some peculiarities which he thinks ought to recommend it by their novelty This power he deno-

* Matthew, Chap. x.—34.

minates *nisus formativus*, which presents little novelty to those who have heard of the *vis formatrix* or *nisus* of Kempt, or *formative propensity* of Darwin. The new information conveyed in this hypothesis of Blumenbach amounts to no more than this truism, that—*a plant or animal is formed by the power that formed it!* It is, in fact, recurring to the old and obsolete mode of explaining phenomena, by which creation was ascribed solely to a *vis creatrix*—generation to a *vis generatrix*—concoction to a *vis concoctrix*, &c. What does Mr. Hunter explain by his stimulus of death—stimulus of necessity—stimulus of cessation, &c. His most enthusiastic admirers can hardly pretend to understand him.

But Blumenbach pretends to have ascertained the laws by which his formative nisus operates. What are these laws? The jet of them is—that young animals grow faster than old ones—that the processes of organization are more rapid in the class of mammalia than in oviparous animals—and that in both classes there are certain organs, for instance, the brain, which are generally found to be more regularly organized than others. In his own language the first law is that—" the activity of the nisus is in an inverse ratio to the age of the organized body"—the second that—" the formative nisus is much more active in the embryos of mammalia than in those of oviparous animals" —the third that, " in the formation of some particular parts of an organized body, the formative nisus is much more regular in its process than in that of others."

There is this apparent novelty, however, in Blumenbach—his attempt to consider a power as distinct from the agent in which it resides, or from which it proceeds—of giving a name to this power, and yet refusing a name to the agent which exercises it. Thus, he gives us to understand that this nisus is a power deriving its origin from some occult quality; and, that this *quality*, though totally *unknown*, has, nevertheless, been found to be a quality of *matter*. If we ask, of what matter is it a quality? Blumenbach admits that it is not a quality of matter in general—that it is confined to organized bodies—and to be found in those bodies *only*, when in that state which is termed *living*—that it seems to depend on the powers of *life*—that it is a quality of *living* bodies, but as distinct from the other qualities of living bodies, (sensibility, irritability, contractility,) as from the common properties of dead matter! After this circle of contradictory and unmeaning reasoning, we may take leave of Blumenbach. If he had simply and candidly confessed that he knew nothing at all about the matter, he and many other philosophers, would have shown their wisdom in exposing their ignorance!

Cuvier, rejecting the hypothesis of pre-existing germs, in-

destructible monads, organic particles, and semina rerum, ascribes the organization of plants and animals, sometimes, to what he terms a *vital force;* sometimes, a *vital impulse*—sometimes, to a *species of motion*—and, sometimes, to *life itself.* To a person not blinded by some hypothesis, some distinction between force, impulse, life, and motion, would certainly have occurred. To him, however, it has not occurred. With respect to *life*, he thinks not of deciding whether it be the cause or the effect of motion—he imagines it to be sometimes the one, and sometimes the other. And yet, as Dr. Barclay shrewdly observes, Cuvier must have seen varieties of motion which never produced any thing like life, while, on the contrary, he never could have observed and fully ascertained the presence of life in any one body, in which that life did not exhibit some phenomena of motion proceeding from itself, and originating in itself, independently of any thing like external impulse. In short, Cuvier's explanation of life and organization is, as Dr. Barclay remarks, "nothing but a heap of words; or, to borrow a term from the language in which it is written—mere *verbiage.*" After this gentleman's assertion that the laws which regulate living bodies are not only different from those which regulate mere matter, but act in a manner *entirely contrary* to those laws, we could hardly fail to be surprised at his singular warning, *not to consider those two kinds of laws, though entirely contrary, the one to the other, as being absolutely of a different order!* The truth is, Cuvier, like those physiologists who would have the stomach to be any thing but a stomach, is strangely bewildered amidst the confusion of his ideas in labouring to prove that the cause of life may sooner be any thing than what men in general feel and suppose it to be. At one time he says that be life what it will, it cannot be what the vulgar suppose it, a particular principle (principe particulier). In another place he acknowledges that life can proceed only from life. (La vie ne naît que de la vie.)—Then again he considers it an internal principle, (un principe interieur d'entretien et de reparation;) and last of all, says (what Mr. Lawrence has since repeated verbatim) that life consists in the sum total of the functions. "Il consiste dans *l'ensemble des fonctions* qui servent à nourrir le corps, c'est a dire la digestion, l'absorption, la circulation, &c." Thus he makes life a cause which owes its existence to its own operations, and consequently a cause which, had it not operated to produce itself, had never operated nor existed at all! Such are the brilliant conceptions and lucid explanations of our modern materialists!

"In concluding these remarks," says Dr. B., "on Cuvier's ideas of the nature of life and organization, it may well be said, that, were any person capable of supporting, with any tolerable degree of suc-

cess, the doctrines of materialism, it would certainly be Cuvier. He is a naturalist, a chemist, mineralogist, a most distinguished and illustrious anatomist, and has probably examined a greater number of organized bodies than any other individual in Europe. His industry, at the same time, his learning, his eloquence, and his various talents, are of the first order, except his logical acumen, which seems to have been either originally defective, or to have been afterwards miserably blunted by his hypothesis. It is truly pitiful to think of a man with so many endowments, natural and acquired, driven as if blindfold by the fashion of the times, a contemptible vanity, or some wretched inclination, endeavouring to support with all his energy the extravagant idea that the phenomena of design and intelligence displayed in the form and structure of his species, might have been the effects of some antique force, impulse or motion, or of some group of functions, as digestion, circulation, respiration, transpiration, and excretion, which have accidentally happened to meet without any assignable cause to bring them together, to hold them together, or to direct them." 330.

LAWRENCE.—In our notion of this section we shall suspend all sentiments of our own, and adduce nothing but what is found, both in letter and spirit, in the work before us. We shall not even use our own language upon this occasion, but adhere most strictly to the very words and expressions of Dr. Barclay. Mr. Lawrence, whom we esteem, and Dr. Barclay, whom we respect, shall have no cause to say that we have aught extenuated, or "set down aught in malice," on the present occasion.

"Mr. Lawrence," says Dr. B., "a skilful surgeon, a learned physiologist, and a distinguished anatomist, in treating of life and organization, has seldom ventured beyond the steps in which Bichat, Blumenbach, and Cuvier have trodden." Like them he appears hostile to the idea of a vital principle—resolves to confine his observations to vital properties—and feels no wish to draw aside the veil from Nature, and penetrate first causes. He disapproves highly of those physiologists who "suppose the structure of the body to contain an invisible matter or principle by which it is put in motion"—such as the *impetum faciens* of Hippocrates, the *archeus* of Van Helmont, and the *vital principle* of moderns. "Most of these terms, Mr. Lawrence observes, have long lain in cold obstruction amongst the rubbish of past ages; and the modern ones are hastening after their predecessors to the vault of all the Capulets."

"By this language, his determined hostility to the vital principle is sufficiently evinced. In writing the last words, he seems to have actually embodied it in his fancy, to have thought of its life, its death, and of its grave, though not, we should hope, of the dark night, of the poison, and the dagger, that are said to have been present at the melancholy scene which once took place in the vault of all the Capulets.*

* "See Shakspeare's Romeo and Juliet, Act V. Scene iii."

In speaking of this principle, when his mind appears in a calmer mood, he says, 'It is compared to magnetism, to electricity, and to galvanism; or it is roundly stated to be oxygen. 'Tis like a camel, or like a whale, or like what you please.'* As in every shape, however, it appears to annoy him, it is no wonder, that, like Lucretius, when in horror at religion, he should feel an inclination to trample it under foot, and that to prevent his imagination in future from being haunted by so troublesome a spectre, he should labour to prove that it did not exist. In proceeding to his proofs, he says, 'We do not profess to explain *how* the living forces in one case, or attraction in the other, exert their agency.'† This is said in imitation of Blumenbach, and, he fondly fancies, in imitation of Newton also, who, in showing that the motions of the heavenly bodies follow the same law as the descent of a heavy substance to the earth does, contented himself with explaining the fact.‡ Taking these two authorities for his example, he proposes to trace the phenomena of life and organization no farther than to certain laws, powers, properties, forces, and impulses, which, in imitation of his principal guide Cuvier, he chooses to call vital. 'Foiled (he says,) in our attempts to ascend to the origin of organized beings, we seek to inform ourselves concerning the real nature of the powers which animate them, by examining their composition, by investigating their texture and the union of their elements. In them only can the vital impulse have its source and foundation.'§ Had he added, like Cuvier, from whom this passage is literally translated,‖ though without any reference, that the texture and union in some measure owe their existence and continuance to the vital forces, or the vital impulse, he might then have inferred, that as they were mutually the source and foundation of one another, there could be no rational motive for tracing them to the origin of organized beings. But Cuvier thinking that also necessary, so does Mr. Lawrence, who, modestly declining either to think or to speak for himself upon the occasion, has no alternative but to follow and obey; and therefore, though his language may appear to proceed directly from himself, it is no more than a literal translation of that passage in which Cuvier¶ talks of the vital germ containing all the vital phenomena to be afterwards developed; of life proceeding only from life, and where he informs us, that the vital impulse said to have its source and foundation in the texture, as the texture had its source and foundation in the impulse, so this impulse is also to be considered as having at times a different origin, and to be an impulse not originating in the texture, but an impulse transmitted from the first parents of

* "P. 169." † "P. 165."

‡ "'In showing that the motions of the heavenly bodies follow the same law as the descent of a heavy substance to the earth does, Newton explained the fact.'" P. 167.

§ "Ibid. p. 142."

‖ "See the original, p. 329, of this Inquiry."

¶ "See Cuvier, vol. i. p. 6 and 7, and Mr. Lawrence's Lectures, p. 140, 141, and 142. See also Mr. Lawrence's advertisement, where the want of time, and a desire to print his Lectures, as they were, are made the apology for omitting references."

every species in an uninterrupted succession. On this new hypothesis, bodies are said to grow on bodies similar to themselves, from which they do not separate until they are sufficiently developed to act by their own powers, when, according to Mr. Lawrence, 'they grow by an internal power, and finally perish by that internal principle, or by the effect of life itself, exhibiting in their natural destruction or death, a phenomenon as constant as that of their first production.'*

"This admission of an internal principle must strike the reader as somewhat remarkable, when that admission is by Mr. Lawrence, who scruples not to ridicule all those physiologists who suppose that any animal structure contains within itself an internal principle that puts it in motion." 336.

What then, Dr. Barclay asks, is the meaning which Mr. Lawrence attaches to *his* internal principle? He has told us, on the authority of Cuvier, that the vital impulse has its source in the texture and union of the elements which compose the structure—that life proceeds *only* from life—and that both life and vital impulse have been transmitted from our first parents by an uninterrupted succession. On the same authority, he has also told us that death is the necessary consequence of life itself—and lastly, brings forward Cuvier to tell us that "the idea of life is one of those general and obscure notions produced in us by observing a certain series of phenomena possessing mutual relations, and succeeding each other in a certain order:—that the vulgar, regarding these phenomena as the sign of a particular principle, have given to that principle a name, though in fact that name can only indicate the assemblage of the phenomena which occasioned its formation." "As to the question what assembled the phenomena?—Mr. Lawrence, before he presumes to reply, has to consult Cuvier, who is unable, however, to solve the difficulty." He only knows that they are assembled, and that they are held together by a link; but he knows as little of the link as of the cause of their assemblage. You may call this cause what you please, with this proviso, that you do not look on it with the vulgar, as a particular or vital principle—though

* "P. 147. See also p. 145, 146."

"The idea that death is one of the necessary consequences of life, is, without acknowledgment, also borrowed from Cuvier. Upon the supposition that life is motion, Cuvier infers that it must cease like every other motion which is not in vacuo: "Il paroit même que la vie s'arrête par des causes semblables à celles qui interrompent tous les autres mouvemens connus, et que le durcissement des fibres et l'obstruction des vaisseaux rendroient *la mort une suite nécessaire de la vie*, comme le repos est celle de toute mouvement qui ne se fait pas dans le vide, quand même l'instant n'en seroit pas prévenu par une multitude de causes étrangères au corps vivant.'—Vol. i. p. 5.

"The opposite opinion that life is one of the consequences of death, has obtained the preference with Buffon and Needham, whom we have seen maintaining with the ancients, that the corruption of one body is the generation of another. *Corruptio unius generatio alterius.*"

both Cuvier and Lawrence have, oftener than once, in speaking of the cause of vital phenomena, used language that leads irresistibly to the vulgar idea of a separate principle contained within the structure, and putting it in motion. If the assemblage of vital phenomena, as digestion, circulation, nutrition, &c. forms this principle, as Cuvier states, how come these phenomena to be called *vital?*

"He seems not to reflect, any more than Cuvier, that the epithet vital in these cases can only imply, that they are the forces, properties, or powers, of a living being; and that, therefore, in annexing the idea of vitality either to a force, a property, or a power, we must first, though absurdly, suppose it personified, and then view it either as a distinct body or spirit. Of this absurdity, Mr. Lawrence himself, on certain occasions, seems to be aware; and on these occasions ascribes his living powers and his living properties to living bodies. So far, certainly, he is quite intelligible: but this question follows, How does it happen that his living bodies come to be formed by their own properties? Here he has no answer to give; *he even acknowledges, that he has no hesitation in affirming that no connexion has been established in any one case between the organic texture and its vital power;* a most singular confession, at least from him. But this leads to another question: If no connexion has been established, how comes he to employ the expression organic texture and *its* vital power? Had he not as good reason for saying the vital power and *its* organic texture? This last expression might however seem to imply that the vital power was the cause of the texture; a supposition which is admitted only when he is accounting for the origin of the texture. In general we are given to understand that the functions are the offspring of the structure, or that the life is the result of the organization; and that the two are consequently connected as cause and effect, between which, it would seem, his experience does not warrant any idea of necessary conexion." 340.

We do not deem it necessary to follow our author any farther in his criticisms on Mr. Lawrence's observations on organization, cause or effect, or the mode of cultivating physiological science. Our readers have now pretty well seen that this section has not brought us *much* nearer to a knowledge of life than any of the preceding sections. We are, in fact, just where we started—unless it be that the farther we go in the inquiry, the darker is our path, and the more we become convinced of our utter ignorance!

Dr. Barclay concludes his critique on Mr. Lawrence with a lamentation and a eulogy conjoined.

"Had Mr. Lawrence only caught a portion of his (Mr. Hunter's) spirit, or a portion of the spirit of Harvey or Haller, and, in prosecuting physiology, dared to think for himself, regardless of Cuvier's or any other's creed; there are few, perhaps, and there have been few, whose ardour, industry, abilities, learning, and opportunities,

would have entitled them to entertain such rational hopes of similar success." 348.

CABANIS.—This gentleman, who has written a large work on the relations between the moral and physical part of man's nature, has taken great pains to prove that the moral part has its origin in the physical—that all our ideas may be traced to sensation or to sensibility—and that these last can be traced no farther than organic structure and its functions. According to Cabanis, it was Democritus who first dared to conceive a system of the world founded on the properties of matter and the laws of motion. He represents this ancient materialist as being found by Hippocrates very busy in dissecting the brains of animals, in order to unveil the mysteries of physical sensibility, and to discover the organs and causes which produce thought.

"Hippocrate, appelè par les Abderitains, pour guerir Democrite de sa prétendue folie, le trouva disséquant *des cerveaux* d'animaux, dans lesquels il s'efforçoit de démêler les mystères de la sensibilité physique, et de reconnoitre les organes et les causes qui produisent la pensée."

On turning, however, to the letter of Hippocrates to his friend Damagetus, we find that Cabanis has, with the greatest effrontery, *falsified the text*. In the letter there is no allusion whatever to this unveiling of mysteries in the search after the organs of thought. Democritus, poor man, was merely dissecting animals for the purpose of finding out the nature and seat of *bile*, which he conceived to be the cause of madness! "Nam animalia hæc, quæ vides, inquit, hujus gratia reseco, *non quod odio habeam opera Dei* sed *bilis*, naturam ac sedem quærens. Nosti enim quod hæc furoris hominum causa est, ubi nimium redundarit."* This is a pretty specimen of Cabanis's fidelity! We shall, however, exhibit another. According to this gentleman, it was Locke who first gave development to this idea of Democritus, by establishing on clear and direct proofs, *that all our ideas are derived from the senses!* Now let us see what Locke says on this point. That philosopher, it is true, asserts that all our ideas are derived *either* from sensation or *reflection;* but sensation and reflection, in his language, are words of different import—denoting distinct sources of ideas.

"'Our *senses*,' he observes, 'conversant about particular sensible objects, do *convey into the mind* several distinct *perceptions* of things, according to those various ways, wherein those objects do affect them: and thus we come by those ideas we have of *yellow, white, heat, cold, soft, hard, bitter, sweet,* and all those which we call sensible qualities; which, when I say the senses convey into the mind,

* Vol. II. p. 917. Vander Linden's Edition, 8vo.

I mean, they from external objects convey into the mind what produces there those *perceptions*. This great source of most of the *ideas* we have, depending wholly upon our senses, and derived by them to the understanding, I call sensation.

"'The other fountain, from which experience furnisheth the understanding with *ideas*, is the *perception of the operations of our own minds* within us, as it is employed about the *ideas* it has got; which operations, when the soul comes to reflect on, and consider, do furnish the understanding with another set of *ideas*, which could not be had from things without; and such are *perception, thinking, doubting, believing, reasoning, knowing, willing*, and all the different actings of our own minds, which we, being conscious of, and observing in ourselves, do from these receive into our understandings, as distinct *ideas*, as we do from bodies affecting our senses. This source of *ideas*, every man has wholly in himself: and though it be not sense, as having nothing to do with external objects, yet it is very like it, and might, properly enough, be called internal sense. *But, as I call the other sensation, so I call this reflection; the ideas it affords being such only as the mind gets by reflecting on its own operations within itself.*'" * 358.

With what confidence, Dr. B. asks, are we to rely either on the accuracy or veracity of Cabanis, who thus imputes opinions to Locke which he never held, "and who, falsifying the letter of Hippocrates to Damagetus, imputes to Democritus a course of studies of which that philopher seems never to have dreamed." In short, had Cabanis comprehended the meaning of Locke, and possessed the candour to represent him fairly and honestly, he would rather have said that Locke was the first, or among the first, who fully exposed the *falsehood* of that old scholastic maxim—"*Nihil est in intellectu quod non fuit prius in sensu.*"

Cabanis having made some use of *physiognomy*, in his hypothesis, Dr. Barclay takes occasion, in this place, to offer some keen, but not illnatured, strictures on it, as well as phrenology or craniology. In respect to the first, or physiognomy, Dr. B. justly observes that the superstitious credulity of mankind is always ready to welcome and embrace such a science, (if it deserve that name,) not only in opposition to reason, but in opposition to the numerous facts which belie its predictions. Our author means not to deny indeed that there are many external appearances in the form, proportions, and attitudes of the body, by which we are led, partly by instinct, and partly by previous associations founded on experience, at once to form some idea of the health, temper, and dispositions of the individual. But he properly objects to the pretension of forming any correct idea of man's private or peculiar character from these alone,

* Essay on Understanding, Vol. I. p. 68. Lond. 1784. 2 vols. 8vo.

without knowing something of his actions, previous education, opinions and prejudices, or of those arts which he may have acquired in counterfeiting various outward expressions that bespeak neither the feelings of his heart, nor the thoughts of his head. In short, the absurd attempt to judge of the whole of a man's character by merely examining a part of his body, his hands, or his head, has been so invariably the practice of physiognomists, that physiognomy now denotes little more than a species of fortune-telling.

Cabanis alludes to the old opinions respecting the four humours, to show that the ancients (as well as the moderns) had frequently observed how much the nature of the several passions, affections, and thoughts was dependent on the state of the body. Now there can be no rational objection to this general conclusion, that the body modifies the vital phenomena. It is only when Cabanis presumes to assert that the body not only modifies, but is really the sole *cause* of these phenomena, that we should be disposed, with Dr. B. to enter our dissent, and to deny that such a conclusion is warranted by his premises, or by any observations which he has made. We shall make no apology for here inserting a rather long extract from Dr. Barclay, since we conceive that it exhibits enlightened views, and at least rational conjectures.

"Suppose that, agreeably to a hypothesis not only of Robinet, but of other philosophers, there are two worlds, a visible and an invisible, and that there are many species of beings belonging to the latter, which, endowed with the power of organizing matter, form to themselves specific structures adapted to their several capacities and energies; would it not follow, on this supposition, that these beings, in constructing their systems of material organs, or in employing these organs afterwards, would at least be regulated by some laws peculiarly their own, and exhibit phenomena, through the medium of such organs, which could not with any propriety be ascribed to any of the substances composing the material or visible world? Considering, besides, that those systems of material organs would still be subjected to the general laws of the visible world, would there not necessarily be a reaction between those systems and the invisible beings within them? and until the relation between them should be dissolved, would not the systems continue subjected to two distinct species of laws at the same time; one species peculiar to the invisible beings acting from within; and another species peculiar to the visible or material world acting from without? Now, that there is some invisible agent in every living organized system, seems to be an inference to which we are led almost irresistibly. When we see an animal starting from its sleep, contrary to the known laws of gravitation, without an external or elastic impulse, without the appearance of electricity, galvanism, magnetism, or chemical attraction: when we see it afterwards moving its limbs in various direc-

tions, with different degrees of force and velocity, sometimes suspending and sometimes renewing the same motions, at the sound of a word or the sight of a shadow, can we refrain a moment from thinking that the cause of these phenomena is internal, that it is something different from the body, and that the several bodily organs are nothing more than the mere instruments which it employs in its operations? not instruments indeed that can be manufactured, purchased, or exchanged, or that can at pleasure be varied in form, position, number, proportion, or magnitude; not instruments whose motions are dependent upon an external impulse, on gravity, elasticity, magnetism, galvanism, on electricity or chemical attraction; but instruments of a peculiar nature, instruments that grow, that are moved by the will, and which can be regulated and kept in repair by no agent but the one for which they were primarily destined; instruments so closely related to that agent, that they cannot be injured, handled, or breathed upon, approached by cold, by wind, or by rain, without exciting in it certain sensations of pleasure or of pain; sensations which, if either unusual or excessive, are generally accompanied with joy or grief, hopes or alarms: instruments, in short, that exert so constant and powerful a reaction on the agent that employs them, that they modify almost every phenomenon which it exhibits, and to such an extent, that no person can confidently say what would be the effect of its energies if deprived of instruments; or what would be the effect of its energies, if furnished with instruments of a different species, or if furnished with instruments of different materials, less dependent on external circumstances, and less subjected to the laws of gross and inert matter. That logician therefore, that moralist, that divine, or that metaphysician, who overlooks the reaction of the organs, and proceeds to treat of the animating principle, as a thing unbodied, or at least not encumbered with material organs, is guilty of as unwarrantable an assumption, as that anatomist, surgeon or physician, who, considering only the reaction of the organs, most illogically concludes that they not only modify the energies of the animating principle, but are even the causes of its existence." 372.

Dr. Barclay observes that the voluntary organs are not restricted to any specific modes of operation—the human hand is not limited to acts of beneficence or cruelty. It is equally subservient to all instincts, appetites, and passions. An organ thus employed in such a variety of different offices, and executing each with promptness and precision, might lead the unwary to suppose it composed of a great variety of subordinate organs, corresponding with its different duties. Such conclusion would not follow, however, in reasoning analogically from the works of *Nature;* for although the hand is constructed of many dissimilar parts, it is *not* on the principles of a timepiece, whereof each index requires a distinct apparatus. In the human hand all the parts are observed to combine in each operation—and the varieties of these operations are not so

much owing to the number of parts, as to the varieties of their combinations—these last being almost incalculable.

"Taking the hand then as a specimen of the works of nature and of animal structure, and thence reasoning on the principles of analogy, with respect to the brain, ought we not to infer, that all the parts of which it is composed may also combine in a similar manner, and be concerned in every phenomenon which has been ascribed to it?" 374.

The phrenologist, it is true, cannot consistently draw this conclusion, imagining, as he does, that each specific phenomenon, or series of phenomena, is the effect of a specific faculty, and that each faculty has a specific system of organs by which it perceives, conceives, imagines, and remembers, in a manner peculiar to itself.*

If the metaphysicians, as Dr. Barclay wisely remarks, have long been censurable for personifying, as it were, what they call powers and faculties, and viewing them as connected loosely, like a bunch of keys hung upon a ring, or engrafted branches deriving their nourishment from the same stock, the phrenologists seem inclined to push this hypothesis still farther, not only increasing the number of faculties but the number of organs. Besides the organs of sense long known to anatomists, they have found or fancied no fewer than thirty-three species of organs or systems in the human brain—and these all in pairs: a pair for each species of propensity, a pair for each species of sentiment, a pair for each species of knowledge, and a pair for each species of reflection. If you ask for ocular demonstration, you are told these organs are indicated by thirty-three modifications observed in the form of the skull, occasioned, of course, by a corresponding number of modifications in the brain. Yet on opening the skull, and examining the surface of the brain, where these organs are said to be situated, it requires no small share of creative fancy to see any thing more than a number of almost similar convolutions, *all* composed of cineritious and medullary substance nearly in the same proportions, and *all* exhibiting as little difference in their form and structure as the convolutions of the intestines—"nay, all, when unfolded, according to Spurzheim, in cases of *hydrocephalus internus*, presenting but one uniform web of cineri-

* "The faculty of tune, for example, perceives, conceives, imagines, and remembers, melody alone; the faculty of causality, perceives, conceives, imagines, and remembers, ideas of necessary consequence and nothing else. One faculty, like one branch, comes to maturity sooner than another; one may be strong, and another weak, in the same or in different individuals; one may decay or become diseased, and the others remain vigorous; and all this in consequence of each faculty having a distinct and specific organ."—*Illustrations of Phrenology, p.* 51.

tious and medullary matter." No phrenologist has ever yet attempted to draw the line of demarcation between these organs; but supposing they were divided, and presented promiscuously and detached, to a craniologist, would he venture to distinguish merely by their form and structure, an organ of propensity from an organ of sentiment—an organ of sentiment from an organ of knowledge—or an organ of knowledge from an organ of reflection? He would be a hardy craniologist if he did! But although it is so difficult to recognise these organs when the skull is removed, yet it appears that they are so very prone to affect conspicuous situations, and obtrude themselves on the notice of the senses, that there is not any visible part on the crown of the head, on the frontal bone, on the occiput or temples, where, according to the craniologist, they do not exhibit, even through the hardest and the thickest skulls, undeniable proofs of their actual presence. Dr. Barclay shrewdly and somewhat jocosely asks, "is it then, in order to be always within the sphere of physiognomic and phrenological investigation, that they equally avoid the central parts of the cerebral substance?" We fully agree with our judicious author in the following passage:—

"To the observations made by phrenologists on the forms of the head, as indicative of the several powers and capacities of the animating principle, if made with sufficient caution and accuracy, and if the relations which they wish to demonstrate can be fairly established upon the broad principles of induction, there can be no rational objection. Their supposed organs rest upon a quite different foundation: not being demonstrable in form or in structure, they must ever remain the mere offspring of a hypothesis; and of a hypothesis that may be disproved by what is termed a *reductio ad absurdum*." 379.

Dr. Barclay pays a just compliment to the learning, candour, and liberal sentiments of Dr. Spurzheim, Sir George Mackenzie, and Mr. Coombe, with whom he is personally acquainted, and who, he feels conscious will not be offended at these remarks.

"Although," says Dr. Barclay, "I think that in many instances their premises are far from supporting their conclusions, and that the latter too frequently rest on the former, like a pyramid on its apex, or a broad superstructure upon a narrow and tottering basis; yet, to their writings I acknowledge myself to be much indebted for several new and important views which they have suggested, and therefore will never subscribe to the sarcasm, that what is true in their doctrines is not new, and that what is new in them is not true. Though evidently inclined to favour physiognomy, yet they seldom fail to caution their readers against its extravagancies: a warning, I suppose, which they have found to be highly requisite: but although, like physiognomists, they be apt to ascribe more influence to the organs than is strictly warrantable, in many cases imagining them

to command where they only obey, they never once question the existence of an internal animating principle, nor, like Cabanis, endeavour to maintain that whatever is moral and intellectual in man is merely the consequence of organic structure." 381.

Dr. Barclay's short section on the share which *chemical affinities* have in the organization of animals, need not occupy any space here. No man of common sense, or common observation can, for a moment, confound together vital and chemical phenomena. It is sufficient to say that, Chaptal and Thomson deny the connexion, affinity, or identity.

This brings us to the third and last chapter of the work, exhibiting a sketch of the opinions of some eminent characters, ancient and modern, who have supposed a living internal principle distinct from the body, and likewise the cause of its organization. The writers noticed on this side of the question are, Aristotle, Harvey, Willis, Hunter, Abernethy, Deleuze, Grew. Over these we must make rapid strides, as our limits are drawing towards a close.

Aristotle.—This powerful genius, after enumerating the various opinions entertained by others concerning the soul, gives us his own opinion. He pronounces it to be a substance belonging to the order of real entities—the first *entelecheia*, or primary principle of action in a natural organized body, susceptible of life, totally different from that which is known to move an automaton or artificial organized body. He then goes on to explain this definition more clearly. Thus, in considering what holds the fabric of the universe together, and forms out of the discordant elements a harmonious whole, he infers, from analogy, that it must be something similar in kind, to that which holds together an organized body—namely, a principle of life; and that this principle, from the appearance of order and design displayed in the universe, must also have intelligence, and have existed before the elements or matter. This supreme animating principle, which he denominates Theos, or God, is invisible to mortal eyes, and can only be known through his works—who is not incorporated with any of the elements, but who resides apart and alone extending his influence to all things on earth and elsewhere.

"Besides this supreme animating principle, the author and preserver of all, there are many others, according to Aristotle, of an inferior and subordinate nature, which, by delegated powers, organize the bodies of animals and plants, so that all organized bodies whatever are to be considered as constructed by, and constructed for their animating principles; which, like the great animating principle, from being invisible to mortal eyes, indicate their existence, their energies, and their species, only through the medium of the structures which they form. Now, of these structures they are not only the

efficient causes, but, in his opinion, the formal and the final; the causes of their motions, growth, and nutrition; the causes which give them a character and form; the causes on whose account they exist; and even the causes of their being afterwards liable to corruption, as nothing is corrupted but what has been nourished, and has some time or other partaken of life." 432.

It is not a little singular that Aristotle, after admitting and endeavouring to prove, that every soul organizes the body, and constructs for itself peculiar organs suited to its faculties, should yet be inclined to believe, that souls are indebted for their existence to the bodies which they have formed, and must consequently perish with them. This opinion is still more singular, when we find him maintaining that the soul is not affected by age—that the dimness of sight, and the effects of sickness and ebriety, are not the consequences of any change in the state of the faculties, but only of a change in the state of the organs—in short, that where the intellectual and contemplative faculties seem to be impaired, we are only to infer that, some organ of the body is diseased, the faculties themselves being still entire, from their participation in the nature of the Deity. He thinks, however, that the Nous, or intellective and contemplative faculties are separable from the other faculties and from the body, and, in conjunction, are capable of maintaining an independent existence.

Harvey. After an active life spent in study, observation, and experiments, Harvey came to the same conclusion with Aristotle, that all animals and plants owe their form, structure, growth, and power of resisting putrefaction, to an animating principle which exists and operates before any organ of the structure can be formed. As the plan on which this principle appears to act unconsciously, implies much power, intelligence, and foresight, Harvey ascribes it exclusively to Him who formed the universe itself, and who appears to be every where present as the superintendent and director. But Harvey, like Aristotle, is not free from inconsistencies. Warped by his favourite hypothesis respecting the blood, he imagined that this fluid is formed and moved before any vessel or any organ of motion exists—that in it, and from it, not only do motion and pulsation originate, but animal temperature, the vital spirit, and even the principle of life itself—that it is the first thing that lives, and the last that dies. With all the inconsistency of the philosopher, he asserts that, the blood appears to differ in nothing from the anima, and that what he had already conceived to be a principle distinct from the blood, appears now to be no more than an act of that fluid! To support this fanciful hypothesis, he appeals to the sacred writings, where the blood is symbolically denominated the life of the flesh. With equal

propriety might he have appealed to the figurative language of Virgil, where a purple life and a purple death are synonymous expressions. "Purpuream vomit ille animam."

We shall pass over the lucubrations of Willis, "who indiscriminately rests his opinions on hypotheses and facts," in the most cursory manner; since, we fear, we have already made considerable demands on the patience of our readers. He believes, with Aristotle, that each individual animating principle organizes the body in which it resides, and always constructs it to suit the specific and peculiar faculties with which it is endowed, and which it is afterwards to exercise. He agrees, also, with Harvey, in supposing that this principle resides in the blood or circulating fluids, denominating it the corporeal soul, and describing it as of an igneous nature, and formed of such particles as the body itself, but of a subtle and refined kind.

Hunter. The mind of this gentleman was not stored with much of the riches of literature. Most of his opinions, though thought by himself and perhaps his friends, as original, are neither new nor uncommon. Thus, having inferred from experiment, not only that a prolific egg has the power of preservation, or a principle of life, but, that organization and life do not depend, in the least, on each other—that organization may arise out of living parts and produce action, but that life never can arise out of, or depend on organization, he seems anxious to secure to himself the honour of these discoveries, though Harvey performed the same experiments a hundred years before, and drew all his conclusions, excepting that one, in which organization and life are made not to depend in the least on each other—a conclusion which, unfortunately, is contradicted rather than warranted, by the premises on which it is made to rest. He appears, also, to have laboured under the singular delusion, that he himself was the first person who had ever dreamed of the vitality of the blood; and yet, the observations and experiments which he made with that view, are neither so numerous nor so forcibly stated, as those which had previously been made by Harvey. After all, he seems never to have entirely divested his mind of the idea of a living power in the solids. What he chiefly contends for is, that there is a principle of life in the blood as well as in the solids—a principle which he calls the *materia vitæ*, and which, principally, he says, composes the brain. On this hypothesis, the brain is the *materia vitæ coacervata*, the nerves chordæ internunciæ, and the like matter diffused through the blood and body in general, the *materia vitæ diffusa*. But he abides not long by this opinion; for he soon afterwards thinks, that this cerebral matter is not so essential to life as the blood—that life commences even in the chyle—while these fluids, on another new hypothesis, are supposed to acquire

their activity in the lungs! It is not surprising that, from such a chaos of inconsistent and contradictory ideas, he was unable to draw any rational conclusion. In searching for the principle of life, on the supposition that it was the property of something visible, he has, fruitlessly enough, looked for it in the blood, the chyle, the brain, the lungs, and other parts of the body—but not finding it in any of them exclusively, he then concluded, that it must be a consequence of the union of the whole, and depend upon organism—the precise conclusion which has still more recently been brought up again by Mr. Lawrence and others. But, to this conclusion, Mr. Hunter could not long adhere, after observing, that the composition of matter does not give life, and that a dead body may have all the composition it ever had. Last of all, he draws the true, or at least the candid conclusion—*that he knows nothing at all about the matter.**

Mr. Abernethy. We have always looked upon the theory of this gentleman as not a less decided doctrine of materialism than that of Mr. Lawrence; and, to us it appears perfectly evident that, had Mr. Lawrence delivered his opinions without dogmatism, without irony, and without sneers at religion,—had he delivered them as philosophical *conjectures*, (and he ought to have known that they were but conjectures a hundred times conjectured,) they would never have involved him in the sea of troubles which now surround him. It is, we repeat it, the *manner* and not the *matter*, which is more objectionable in Mr. Lawrence's than in Mr. Abernethy's writings.

Mr. A. has adopted *that* opinion of Mr. Hunter, which makes the principle of life independent of organization—a something *superadded* to the organized structure. "In defending this opinion, however, he supports it with much modesty and candour, and no where attempts to enforce it by sophisms or dogmatical assertions."† We are now to inquire on what evidence is founded the supposition, that life is *superadded* to organized structure.

"If the organized structures of the first parents of every species were formed in the first place, and then their vital principles superadded, can it be supposed that this is the manner in which the structures of any of their progeny are now formed? Has any physiologist ever observed an animal or a plant whose visible structure had not been formed by successive processes of organization? or ever seen a process of organization which did not indicate the previous existence of a vital principle? Nay, were we to trust either to the

* "But mere composition of matter does not give life; for the dead body has all the composition it ever had: *life is a property we do not understand.*"—*Hunter on the Blood*, p. 90.

† *Barclay*, p. 485.

evidence of our sense or our reason, should we not say that, in our days at least, the structure appears to be rather superadded to the vital principle, than the vital principle superadded to the structure? To repeat an observation formerly made, it is upon this hypothesis alone that Cuvier and other naturalists have concluded, that plants and animals which happen to be found in a fossile state had formerly been alive: but the question occurs, what gave them life? or what preceded their organization? Mr. Abernethy supposes a subtile substance of a quickly and powerfully mobile nature, which pervades every thing, and appears to be the life of the world; a substance which he thinks may be considered as a distinct and active principle, not confounded with intelligence of any kind." 488.

This notion he ascribes to Mr. Hunter; but every body knows that, there is scarcely a notion more ancient than this *anima mundi*, diffusing life and motion through the universe, though devoid of intelligence itself. This vital principle Mr. A. seems to attribute to electricity. "Thus," says he, "if the vital principle of Mr. Hunter be not electricity, at least we have reason to believe it is of a similar nature, and has the power of regulating electrical operations." Yet, it is singular, as Dr. Barclay shrewdly observes, that it did not occur to Mr. Abernethy, that the power of regulating electrical operations belongs more properly to an electrician than to electricity—to the agent directing, rather than to the material directed. But how can it be conceived that, this unintelligent and unconscious material, (whatever it may be,) should so vary its modes of operation, as to construct the almost innumerable species of organized forms to be found in the animal and vegetable kingdoms—each constructed on a plan, and each plan different from another? Is it not far more natural to suppose, that every animal has a specific organizing principle, with specific powers to organize, to feel, and to be guided by specific instincts? and, that the individuals of the human species have, in like manner, a specific principle, not only to organize and to feel, and to be guided by specific instincts, but even to reason?—Every thing, indeed, seems to support the probability of this opinion, though some speculative physiologists would have us believe that, one subtle unconscious substance is capable of beginning, or if not of beginning, of carrying to perfection, when once begun, all the various species of organisms; and, that a common sensitive principle, in the same way, is sufficient to account for all kinds of sensations.

"But must nature be compelled to accommodate herself to their conceptions and to their inclinations? Is not her right to dictate to them better than their right to dictate to her? When God said, Let there be light, there was light; but can they pretend to any such power? Certainly not: they can indeed, as often as they choose,

call spirits from the vasty deep, and so can we, or so can any man; but will they come when either they or we do call for them?"* 494.

The plain truth is, that the way in which the Supreme Being has bestowed upon us, and upon every species of animal, that singular power by which we can move, by an act of the will, those masses of matter, which constitute our bodies, must to us remain for ever inexplicable. But the fact may enable us to form some idea how the Creator, by a mere act of *His* will, could call the universe into existence, and still uphold it without either labour or fatigue.

"Might we here be permitted to form a conjecture on a subject which so far exceeds our comprehension, to us it might seem, when he called into existence those spirits which inhabit organisms, as if he had said, You inferior spirits require organisms of gross materials to hold communication with the visible and tangible objects around you; and as my will is every where obeyed throughout the extensive regions of space, I have willed that all of you construct organisms suited to the faculties with which I have endowed you; but as I have not bestowed upon you faculties to comprehend their mode of formation, or their mode of acting, I have ordained, that when you shall will, your organisms shall obey, though how they obey you shall never know, being creatures of too limited intelligence to comprehend the wisdom, the power, the ways, and the doings of the Most High." 499.

Our author's section on animal magnetism, and particularly the system of *Deleuze*, (or, without meaning a pun, the system of *delusion*,) we shall pass over in a very cursory manner. We are surprised, indeed, that Dr. Barclay should have taken the pains to wade through such a sea of absurdities, with the expectation of finding any thing else than the dreams of credulous, crack-brained, or designing men. He has waded through it, however, and he asks, whether the several phenomena of animal magnetism, *allowing that they are stated correctly*, establish any general fact with which we were not previously acquainted? Have not most of us, he observes, felt when there was nothing to arrest our attention but insignificant nods, shrugs, waving of hands, *or tiresome drawling, monotonous tones of an uninteresting, long-winded orator, that we have irresistibly been compelled to sleep?*† Might we not have learned from daily experience, that the voluntary motions of our bodies are under the direction of some vital principle within us? "and that this principle and our voluntary motions may also be brought under subjection to another principle of the same species?" Do we not see the voluntary motions not only of one or two, but even of thousands

* See Shakspeare's King Henry IV. part i. act iii. sc. 1.

† We suspect Dr. Barclay has a sly hit at some other than magnetic orators in the latter part of this passage.

in fleets and armies, in a great measure regulated by the will of one individual? Have we not observed that will communicated to thousands almost instantaneously by a word, by a sound, or a visible sign, and afterwards operating through their hopes or their fears, their astonishment, or their despair, so as to affect their thoughts while awake, and their dreams while asleep?* These facts, by their familiarity, are passed unnoticed, while we wonder at the phenomena of animal magnetism that are nothing more than those which we every day see.

After giving some short account of the opinions of Grew, as contained in his Cosmologia Sacra, but which need not detain us here, Dr. Barclay offers a brief "summary view," of what our readers have seen more in detail in the course of this article. We do not deem it necessary therefore to make any recapitulation of those details here, but shall notice the concluding portion merely of Dr. Barclay's summary.

After remarking on the inadequacy of all those explanations which have been offered by philosophers, and which we have amply delineated, Dr. Barclay adverts particularly to the insurmountable difficulty which the Sceptics have found in explaining how the *first parents* of the different species of animals might possibly have been formed. In fact, the Materialists studiously shun this question, and that under the pretence that such inquiries might lead them into the *regions of fancy*—regions, forsooth, in which they are not at all disinclined to roam upon all other occasions! They saw distinctly that first parents could not be formed, either in the womb or in any other organ of a parent, at a period when no parent existed—in short, they saw the insuperable difficulties which they had to encounter, if they allowed their fancies to ascend to the origins of things—and to avoid this embarrassment they chose to assert that all events move in a circular, and that all species of plants and animals may have been eternal!—imagining that by this contemptible subterfuge they would evade the obvious question "how came the first parents to be formed in a manner so different from that by which their progeny is formed now?" We believe, with Dr. Barclay, that the account of our first formation, as given by Moses, is the best that ever was promulgated, whether that writer was inspired or not. The cause which he assigns is an omnipotent, omniscient, omnipresent Being, invisible, self-existent, and eternal, to whose will the whole universe is subject-

* Every body knows the mental contagion, for instance, which spread so rapidly through the hospital at Haerlem, and which, from the sight of a single individual falling into fits, diffused itself in the form of epilepsy through most of the young persons in the house, and was afterwards as suddenly checked by Boerhaave without employing other means than that of inspiring the patients with the dread of much greater horrors, if they ever again submitted to such fits.

ed more thoroughly and completely, though not more inconceivably, than our bodily organisms are subjected to our wills. Moses says, and so think we, that this Supreme Being did create man, as well as the earth he treads on, by the fiat of his will, giving him the dominion over other animals, and endowing him with the power of judging between what is morally right and wrong—with the faculty of reason—with the capacity of tracing phenomena to invisible causes; and ultimately to the Creator himself. The original mandate, "be fruitful and multiply, each after its kind," was obeyed at the beginning, and it is in force to this day. It was issued to animals and to man, by the same Deity.

"Nor let man envy the honour thus bestowed on his fellow creatures. He has obtained the dominion over them: so let those who are conscious of this marked distinction, who are capable of tracing the origin of their species to the first of causes, and who feel that they are under the protection of an omnipotent, omniscient, omnipresent being, self-existent, benevolent, and just, be therewith content, and congratulate themselves that they are not reduced to that low and degraded state of some modern physiologists, who with all their efforts, have never been able to trace their origin beyond some gross collections of matter, some occult qualities, or some unknown chemical affinities of mud or atoms; and who, as to religion, have only to console themselves with the thought, that they are at least as far advanced as the Caffres, the Hottentots, and the untutored savages of Brazil." 531.

Thus concludes Dr. Barclay's work—a production equally creditable to his head and his heart. The motives which have led him through such toilsome researches are unquestionably of an honourable and commendable kind, for they unequivocally point to the welfare and happiness of mankind at large, by inculcating veneration for the Deity, respect for themselves, good will towards their fellow creatures, and charity towards the whole of animated nature. But the peculiar or local tendency of the work, we conceive, is to show the rising generation of the profession the folly of prying into first causes, by portraying the wild, contradictory, and ridiculous theories into which the most eminent philosophers of all ages have been led, when attempting to unravel those mysteries which Nature, or Nature's God has thought proper to veil from human eyes. It was with the view of furthering the objects of Dr. Barclay's work that we have entered so extensively into its analysis, and endeavoured to convey a pretty accurate idea of its prominent features to our readers. We have little to add to those remarks which we have occasionally made in the course of the article, now protracted beyond what we originally calculated on. The psychological turn which anatomical and physiologi-

cal investigations have lately taken, will, we fear, be injurious in many ways. These investigations will lead us from the direct path of our own proper studies, and tend to unsettle not only the minds of professional men, but of the vulgar themselves. In the present intellectual state of society it is as utterly impossible to have one set of opinions for the high and another for the low, as to have two suns to see by, two atmospheres to breathe by, or two kinds of sensorium to feel by. "For opinions," as a modern author justly observes,* "like showers, are generated in high places, but invariably descend into low ones, ultimately flowing down to the people, as the rains unto the sea." It is quite evident that the *doubt* of a future state of existence must be quickly followed by a *denial* of that state; and it is difficult to conceive what would be the effects of a general revolution in the minds of men respecting this momentous question. We cannot but think that, in such a case, all that endears us to our fellow men, and all that exalts us above the beasts of the field, must be swallowed up in the paltriness of the present and nothingness of the now! If a few sceptical philosophers have exhibited examples of virtue, honour, charity, and other Christian virtues, we must recollect that all men are not philosophers, and that when the belief of a future state of existence was thrown off by the multitude, in the French revolution, all the dark traits of human nature instantly became prominent, and man proved himself (without the curb of religion or morality) to be "more fierce than tygers on the Lybean plain." Gibbon, when quaffing noyeau, and ridiculing the doctrine of a future existence, was asked what would probably be the effects of this scepticism on society in general. His reply was this:—"the doctrines we are now discussing, are like the liqueur we are now drinking;—safe and even pleasant to us, who know how to use, without abusing them;—but dangerous, deleterious, and intoxicating, if either the liqueur or doctrines were broached in the open streets, or exposed to the discretion of the mob." Experience has now taught us that though bolts and bars may keep noyeau from the multitude, they are quite inefficient in confining sceptical doctrines, which are too volatile for such imprisonment. It may be urged, (as it has often been urged,) that the promulgation of truth can never be ultimately injurious to society. But how are we to ascertain the *truth* of these doctrines to which we are objecting? They are but speculations, and whether true or false, their promulgation is attended with bad effects in the mean time. We have often wondered how medical men, who daily witness the benign influence of religion in mitigating the miseries of sickness, and dis-

* Mr. Coulton.

arming the terrors of death, can bring themselves to broad doctrines subversive of all those consolations which the afflicted derive from the belief of a superintending Deity, and another and a better world! We cannot but think that this wanton trifling with the feelings, the hopes, and the fears, of so large a portion of mankind, is little indicative of philanthropy in the breast, or good sense in the head, of the writer. It has been well observed that—"in literature our taste will be discovered by that which we give, and our judgment by that which we withhold." It would be for the benefit of society, and the credit of the medical profession, if such of its members as held sceptical opinions were to keep them confined within their own bosoms till the multitude are as great philosophers as themselves, and as capable of discussing metaphysical subjects.

God forbid that we should be advocates for fettering the human intellect, and checking the liberty of discussion. But while indulging ourselves in the full freedom of *thought*, we have no right to issue *words or writings* that may be prejudicial to the community of which we are members, and to which we owe our safety. There are many and cogent reasons why the medical philosopher should avoid, as much as possible, those metaphysical discussions that involve religious or political tenets. By the profligate, licentious, and factious portion of society (no inconsiderable portion) his speculations will be adopted only to turn them to the worst of purposes. By the fanatical portion, and by the intolerant or crafty part of the priesthood, they will be converted into engines of persecution against himself—while by the truly philosophic portion of society (which is comparatively small) the *promulgation* of these doctrines will be condemned, even if the principles they contain should be embraced. If indeed we look back into the records of the past, we shall find that an absolute freedom in discussions involving religion, morals, politics, never yet existed in any age or country. It is one of the dreams of modern philosophy. The superstition of the Lacedemonians prohibited all inquiry on the subject of religion—and in Athens, the ancient city of intellect, the lives of Æschylus, Socrates, Alcibiades, and many others, demonstrated that neither genius, learning, courage, nor the softer virtues, could screen their possessors from the persecutions of an implacable priesthood. In Rome it was *toleration*, not freedom. In Europe, wherever freedom has been allowed, licentiousness has followed. We would therefore recommend to our brethren a close adherence to the legitimate subjects of our own science, (where unhappily there is but too much to be yet accomplished) leaving all metaphysical speculations to those whose lives are spent more in the closet than in society—in contemplation than in action—in

ascertaining the attributes of the soul, rather than in watching the diseases of the body.

Historical Sketch of the Opinions entertained by Medical Men respecting the Varieties and the Secondary Occurrence of Small-pox; with Observations on the Nature and Extent of the Security afforded by Vaccination against attacks of that Disease: In a Letter to Sir James M'Grigor, Director-General of the Army Medical Department, &c. By JOHN THOMSON, M. D. F. R. S. E. Surgeon to the Forces, Honorary Member of the Royal Medical Society of Edinburgh, Regius Professor of Military Surgery in the University, and Consulting Physician to the Edinburgh New Town Dispensary. Longman & Co. London. Brown, Edinburgh. 1822.

(From the Edinburgh Medical and Surgical Journal, for Oct. 1822.)

Lord Bacon, whose prophetic mind was able to anticipate almost every thing in every division of every science, has well distinguished the different kinds of civil history into Sacred, Secular, and Literary; but the uncultivated state of medical science at the time when he delineated the picture of human knowledge, and the route of scientific discovery in his Treatise *de Augmentis Scientiarum*, has perhaps prevented him from framing the exact notion of a modification of the historic art, not without its use in modern times. History, when applied to medicine, may be of three different kinds;—*natural* history, or the description of those objects, actions, and processes with which the physician requires to be intimate in knowing and treating disease;—*literary* history, or the description of the origin and progress of those branches of knowledge on which the art of medicine depends;—and *chronological* history, or the review of the successive steps by which men become acquainted with the natural history of individual medical objects; the critical enumeration of the errors into which they were led, and the truths with which they were rewarded in relation to the nature of the disease which was the subject of inquiry; and the advancement which was individually, successively, or simultaneously made;—all the information in short, which can be gathered, to show the manner in which a subject originally obscure and complicated came to be clear, simple, and intelligible. There are, of course, but few subjects in medicine, which demand this elaborate investigation; for, in general, when we are satisfied that we know any subject truly and accurately, we are perfectly willing to part with all the erroneous and doubtful

matter in the easiest way, and rarely think that our time can be well rewarded in evolving the bearded masters, to know that they were less wise than we, or in ransacking the magazines of ancient literature, to bid the scattered rays of their fallacious glimmerings enlighten the path of modern investigation. In the silent march, however, of centuries or cycles, in the revolutions of opinions, in the progress of doctrines, or in the development of systems, it must occasionally happen, that the physician even who is least disposed to extol the glories of past days, will direct a retrospective glance to periods when the early observers seem to have girt themselves to the illustration of a new and unknown matter, with the freshness and vigour of the strong man who had arisen from slumber;—when the observations made and the facts recorded were so true to the original that the experience and perfection of ten centuries were unable to add any thing to their accuracy. Nay, it has even happened, that the points ascertained at such early periods have been forgotten or overlooked amidst the general ignorance of one age, or the obscuring bigotry of another; and their second discovery has added to the reputation of men who were more honoured in their personal observation of present objects, than by their learning or knowledge of what had been anciently achieved by the fathers of the profession.

Such a subject, in some sense, may small-pox be said to be, and such investigation it may justly require. Though believed to be well known in its nature, the controversies which have lately been agitated on some of its modifications and varieties, show that its natural history is far from being perfect; and the mistakes into which some modern physicians have fallen on points which seem to have been well known to the more early observers, are sufficient proof that its chronological history is neither generally nor accurately known. It is impossible that the investigation of this subject could have fallen into better management than that of Dr. Thomson, in whom the powers of faithful and correct observation are so happily united with varied and extensive learning, and indefatigable research. The enthusiasm with which this eminent physician engaged in the investigation of the natural history of varioloid eruptions, was sufficiently conspicuous in the work which he formerly published on the late epidemic in Scotland; and the conclusions at which he had arrived were at once the effect and the proof of the deliberate attention with which he had canvassed all the points, both presumed and problematical, of the question. It will be remembered that Dr. Thomson was led, by the results of his investigations, to form opinions somewhat new on the nature of variolous and varioloid eruptions;—particularly that all the varieties of eruption which occurred were generated by the

operation of one and the same contagion: and that the iterated appearance of small-pox in the same individual, was not without precedent in former variolous epidemics. It was with the view of ascertaining how far these opinions were supported by the phenomena of former epidemics recorded and observed by various physicians, that Dr. Thomson entered on this investigation; and the present volume, which is obviously supplementary to the former, is the result of these researches.

It is not our intention to enter minutely and particularly into the subjects of Dr. Thomson's historical sketch; nor will our readers require a very detailed account of a work which must be studied with attention, in order to obtain a just idea of the objects and reasonings of the author. Our duty, we conceive, will be sufficiently well accomplished, if we mention the plan of Dr. T., and the general manner in which he has conducted his historical inquiry; and it will be found, in the course of this notice of our author's researches, that he has completely succeeded in establishing the principal opinions which his personal observation had led him, *a priori*, to adopt.

Our author divides the chronological history of small-pox into three different periods;—the first from the time of Mohammed Ebn-Zekaria Abu-Bekr-Alrazi, popularly named Rhazes, in the beginning of the 10th to the beginning of the 18th century, when the practice of inoculation was introduced into Europe; the second, from that time to the discovery of vaccination; and the third, from the time when this practice was introduced to the present hour.

The first of these periods is much the longest; but presents a succession of authors whose opinions are now learnt rather as objects of curiosity, than for any useful purpose. Of these, the most ancient are the pure Arabians, as George Bactischwah, Abu-Bekr-Alrazi and Abu-Ali Hosîn Ebn-Sina (*Avicenna*); the second of whom—the earliest undoubted authority—recognised those modifications of variolous eruption which we now distingish as benign or malignant, horny, warty, and more or less severe; while he agreed with Ebn-Sina in admitting the possibility of small-pox occurring twice in the same individual.* The

* It is perhaps difficult, if not impossible, to ascertain the antiquity of small-pox; and although physicians look on Abu-Bekr-Alrazi as the first correct authority on the disease, there is reason to believe that it was known many centuries before. We ought to have noticed earlier the Fragment of a learned and ingenious Inquiry by Dr. Willan, lately published by Dr. Ashby Smith in his Miscellaneous Works. Dr. Willan employs his acquaintance with the ancient authors to show, that there is reason to think that the small-pox eruption was one of those pestilent diseases (λοιμοι, νοσοι λοιμικαι) which so frequently appeared among the ancient Grecian states, and the desolating effects of which have formed points so conspicuous in their history, and occasionally even occupied the genius not only of the historians, but of the tragic poets. It is easy to see that the descriptions to which Dr. Willan has referred are not sufficiently precise to

second class of authors, during this period of small-pox, consists of the Arabesque, or those European physicians who flourished before or about the time historically named the *revival of literature*, but who derived their information and medical opinions principally, if not entirely, from the Arabian masters. Little remarkable is gleaned from their writings, unless that they coincided with their preceptors in thinking, that the same individual may suffer the variolous eruption twice. Among the subsequent authorities, which are by far the most numerous, we meet with a few names more distinguished, and some more correct accounts of the natural history of the disease, especially with regard to its iterated appearance, which was admitted by Ingrassias, Fracastorius, Fernelius, Amatus Lusitanus, Franciscus de Piedmont, Forestus, and our countryman Duncan Liddle of Aberdeen, who, about the end of the 16th century, was Professor of Medicine at Helmstadt in Germany. Sennert first distinguished the varieties of *stone-pox*, *wind-pox*, and *sheep-pox*, by the names by which they are at present known: and described the two latter, called by some *crystalli*, as similar to the eruption since named *chicken-pox*. Johnstone noticed the popular German terms for the varieties of sheep-pox (*schaafs-blattern*) and tuberculated eruption (*stone-pox*); and Andrew Buxbaum mentions the distinctions of mild and malignant, *water* and *wind-pox*, pointed or *conoidal*, and *fluxed* or *confluent*, as in ordinary use among physicians and nurses. Some time after this (1690), the eruption is distinguished into genuine and bastard by Sydenham and Pechlinus, the last of whom positively asserts, that undergoing the latter will not secure from the attack of the former. The same distinctions were adopted by Morton, who further denominated the benign form of the eruption *chicken-pox*—the first time this term is employed by any medical writer in England; and by Gideon Harvey, who introduced the term *swine-pox* to designate that form of eruption which had been previously named *schaafs-blattern* in Germany, and who also believed in the iteration of the eruption in the same person. Our author, in short, shows, that the same distinctions in the form of eruption, and in general the same opinions on the possibility of its reappearance, under certain circumstances, in the person of the same individual, were maintained and inculcated by Lister, Hagendorn, Beherns, Low, Isaac, Juncker, Chesneau, and especially Zwinger; and concludes with the following summary.

warrant any very positive conclusions; and we do not therefore feel disappointed that Dr. Thomson has not carried his researches on the First Period of the History of Small-pox to a period more ancient than the time of the Arabian authors.—Vide *Inquiry on the Antiquity of Small-pox, in Miscellaneous Works of Robert Willan, M. D., edited by Ashby Smith, M. D., London*, 1821.

"*First*, That a distinction has very early been made of small-pox into proper and improper, genuine and spurious; *secondly*, That all the varieties of this disease, whether mild or malignant, distinct or confluent, vesicular or pustular, genuine or spurious, chicken-pox, swine-pox, sheep-pox, wind-pox, stone-pox, and horn-pox, have generally, if not universally, been supposed to have had only one origin; and, *thirdly*, That although the possibility of the recurrence of this disease in the same individual was denied by Averrhoes, and by a very few who have followed him, yet that this was an opinion almost universally adopted, and that many examples of secondary small-pox have been adduced by practical authors, before the commencement of the eighteenth century." p. 30.

The *second* period of the chronological history of small-pox is much shorter, but more interesting, in consequence of the controvertible points to which the introduction of the practice of inoculation gave rise. It is well known that this practice, which was imported from the East about the year 1720, was as zealously reprobated and vigorously opposed by one part of the profession, as it was countenanced and recommended by the other. In consequence of this circumstance we find, that the medical authors who have written on the subject of small-pox, have, in general, either espoused or opposed the cause of inoculation; and their ideas of the natural history and definite character of the pure disease, have been influenced entirely by this bias. It is obvious, that it was the interest of those who contended for the protecting power of artificial variolation, to maintain the individuality of character and uniquity of occurrence in the eruption, and to deny strenuously the possibility of a variolous eruption occurring twice in the person of the same individual; and we accordingly find, that this is one of the remarkable results of Dr. Thomson's inquiry into the history of this practice. It is certainly curious to remark, that the inoculators, were, with few exceptions, unanimous in denying the iterated occurrence of small-pox, and contended, that the instances which the opposers of inoculation adduced, were either to be ascribed to imperfect inoculation, or were to be considered as a spurious and degenerate eruption, or were, in short, the result of a contagion totally different. It was in this manner that the opinion which was first entertained by Fuller in England, and Hosty in France, on the specific difference of chicken-pox and small-pox, was ultimately converted into an established doctrine by Heberden, and has since been universally adopted by the whole profession, both in this country and elsewhere, till the observations of Dr. Thomson have led him to question the force of the evidence on which Dr. Heberden founded his distinction. The authors whose writings Dr. Thomson has consulted on these points, are so numerous, and the particulars so

complicated, that it would be totally out of place to enter into the details at present; and we shall satisfy ourselves with exhibiting the conclusions which our author has, we think, very justly derived from his researches.

"1*st*, That most, if not all, of the advocates for this practice denied the possibility of the secondary occurrence of small-pox, and were anxious to disprove this opinion, conceiving that its admission might be injurious to the cause of inoculation.

"2*dly*, That notwithstanding this unwillingness on the part of inoculators to admit the occurrence of secondary small-pox, cases of this kind have often presented themselves to the observation of medical practitioners in the epidemic prevalence of this disease at different times, and in various countries of Europe, and that these cases have occurred in circumstances, and with symptoms which do not appear to have left any room for doubt, with regard to the genuine nature of the disease.

"3*dly*, That the varioloid eruptions occurring in those who had previously passed through either natural or inoculated small-pox, have had the appellations applied to them which had been given during the first period to spurious or illegitimate small-pox, such as wind, water, horn, sheep, swine, and stone-pox, but apparently without the belief that these diseases arise from more than one contagion.

"4*thly*, That the opinion suggested by Dr. Fuller, that all the varieties of spurious small-pox are specifically different from one another, as well as from the genuine small-pox, does not appear ever to have been adopted by medical practitioners.

"5*thly*, That the crystalline, or lymphatic varioloid eruption, was considered by some of the advocates for inoculation in France as an eruption, different not only from small-pox, but also from chicken-pox.

6*thly*, That all the different forms of the varioloid eruptions which had been previously considered by medical practitioners as spurious small-pox, were, about the year 1767, conceived by Dr. Heberden to arise from a contagion specifically different from that of small-pox, and that to all the diversities of these eruptions he gave the specific appellation of the varicella, or chicken-pox, and, by means of this hypothesis, was enabled to account for the apparent secondary occurrence of small-pox.

"7*thly*, That, though this opinion of Dr. Heberden was almost universally adopted by medical practitioners, yet (that) a few practical observers were on particular occasions under the necessity of regarding that form of varioloid eruption, which had usually been denominated swine-pox, to be specifically different from chicken-pox, as well as from small-pox, because they had observed it to occur in those who had previously passed through both of these diseases.

"8*thly*, That chicken-pox was declared to be a disease equally capable of being communicated by inoculation as small-pox, and that many examples have been recorded by the first medical authorities of the inoculation of chicken-pox.

"9*thly*, That notwithstanding the prevalence of the opinion of the

distinct nature of chicken-pox and of small-pox, and the assertion so frequently repeated, that these two diseases had been observed to prevail separately, there is no satisfactory proof to be found in our medical records, of there ever having done so; but many proofs of the fact, that all the varieties of the genuine, as well as of the spurious sorts of small-pox, have, in the same epidemics, come in and gone out together, in the same manner as it will be seen that they have uniformly been observed to do during the period of vaccination.

"And, 10*thly*, That various authors have attempted to prove, by their observations and experiments, that small-pox virus may undergo such a deterioration in its qualities from heat, dilution, age, &c. as to render infection with it no security against small-pox, either natural or artificial, even though it may have been sufficient to produce febrile action, and a varioloid eruption, so like that of *true* inoculated small-pox, as not to be distinguishable from them by the appearances which present themselves." pp. 137—139.

The third period of the chronological history of small-pox extends from the discovery of vaccination to the present time; and though it do not exceed the length of 24 years, yet during that brief space, it has occupied an infinitely greater proportion of the attention of the profession, than any other disease has ever done during a like period; and the researches to which it has led, have more effectually contributed to illustrate the nature and laws of contagious poisons, than had been done by entire ages of previous observation. We have already said, that the researches of our author have shown, that, at the commencement of the last period, the opposers of the practice of inoculation were uniformly distinguished by maintaining the iterated occurrence of the natural disease, and the existence of varieties in the eruption; we have now to observe, that this belief was after the discovery and introduction of vaccination transferred to those who opposed and reprobated this latter practice. We will not endeavour to save our readers the trouble of perusing this part of our author's history, by any abstract or abridged account of it. It involves so many individual points, and embraces so wide a range of controversial and qualified opinions, with so many varied explanations of anomalous or unexpected facts, that we cannot safely offer to condense or generalize in any other manner than has been done by Dr. Thomson himself. This consists of a twofold series of conclusions, one of which is derived from the review of the observations and opinions of medical practitioners in this country; the other from those of practitioners in various countries of Europe, in America, the East and West Indies; and these conclusions are respectively applicable to the occurrence of varioloid eruptions in vaccinated persons in these different countries.

In reference to Great Britain, Dr. Thomson infers:—

"1. That from the introduction of vaccination, up to the present time, eruptions resembling small-pox have been observed to occur in a greater or less proportion of those who had appeared to have passed through that process in a regular and satisfactory manner.

"2. That these eruptions have occurred during the epidemic prevalence of natural small-pox, and have appeared to bear a certain proportion, in their frequency and severity, to the extent and malignity of that disease.

"3. That in the earlier period of vaccination, these eruptions were generally regarded as chicken-pox; but in the progress of this practice they came to be considered by medical practitioners sometimes as chicken-pox, and at other times as small-pox modified by vaccination, and that they have not unfrequently been denominated *anomalous* eruptions.

"4. That the diagnosis between chicken-pox and modified small-pox has usually been allowed to be very difficult, on account of the great resemblance which these eruptions bear to one another; and accordingly, it has not unfrequently happened, that the same individual eruption, which had been denominated chicken-pox by one practitioner, has been pronounced by another to be small-pox modified by vaccination.

"5. That the descriptions given of chicken-pox by Drs. Heberden and Willan, having included appearances similar to those observed in secondary small-pox, and in small-pox modified by vaccination, it became necessary, in order to distinguish these two forms of variolous eruptions from chicken-pox, to seek for some more precise characteristics of this disease.

"6. That the first attempt in this country to fix more precisely than had formerly been done, the diagnosis between chicken-pox and small-pox, appears to have been made in 1809 by Mr. Brown of Musselburgh.

"7. That to the diagnostic marks of chicken-pox, suggested by Mr. Brown, there have been lately added—the disease being incommunicable by inoculation—the susceptibility in those who have passed through this form of varioloid eruption of regular cow-pock infection; (See Account of Varioloid Epidemic, &c. pp. 73, 75, and 188.) and the eruption being bullose, not cellular like small-pox.

"8. That none of those who contend for the existence of this species of chicken-pox, as distinct from modified small-pox, have given us any information with regard to the duration of the disease which they have denominated chicken-pox, nor (or?) of the proportional number of cases in which this particular form of eruption occurs in individuals who have neither had small-pox nor cow-pox, compared with that in which it occurs in those who have gone through these diseases.

"9. That the vesicular or bullose chicken-pox have been observed to arise in unvaccinated infants from the contagion of small-pox, and that this form of varioloid eruption has not hitherto been observed to prevail epidemically, independently of small-pox.

"10. That it was originally supposed, and is still by some believed, that those who pass through cow-pock inoculation in a regular and

satisfactory manner, are by this process rendered wholly unsusceptible of small-pox contagion.

"11. That those who have adopted this belief have at different times endeavoured to account for the occurrence of small-pox in those who have been vaccinated, by supposing that the vaccination had been *imperfect.*

"12. That this imperfect vaccination has been supposed to have arisen from various causes. 1*st*, From inoculation with the matter of spurious cow-pox in the cow; 2*d*, From inoculation with equine matter; 2*d*, From inoculation with matter taken at too late a period from a vesicle produced on the human body, or kept too long after having been taken; 4*th*, From the production of a local pustule by genuine cow-pox matter, without constitutional affection; 5*th*, From the rupture, accidental or intentional, of the cow-pock vesicle, or from exhaustion of its contents; 6*th*, From the occurrence of cutaneous eruptions during the progress of vaccination; and, 7*thly*, From too small a number of punctures.

"13. That it is to the three last of these causes that those who believe in the *preventive* power of vaccination have chiefly attributed the occurrence of small-pox in the vaccinated, during the late very general prevalence of that disease.

"14. That there does (do?) not seem to be any sufficient grounds for believing that cutaneous eruptions have been more frequent among those of the vaccinated who have been afterwards affected with small-pox, than among those who have escaped the contagion of this disease.

"15. That the records of vaccination abundantly testify, that during the first ten years of this practice, there was obtained from inoculation with one or two punctures, a security equal to, if not greater, than that which has since been supposed to be obtainable only by making three or four punctures.

"And, *lastly*, That it has at length been acknowledged by the Board of the National Vaccine Establishment, 'that the pretensions of vaccination to the merit of a perfect and exclusive security in all cases against small-pox, were admitted at first rather too unreservedly.'" pp. 282—286.

In reference to other countries, as France, Germany, Italy, Holland, America, and our colonial establishments, Dr. Thomson infers:

"1*st*, That from the first introduction of vaccination into these countries, varioloid eruptions have been observed to occur in the vaccinated, sometimes coexistent with, and at other times subsequent to, cow-pock inoculation.

"2*d*, That these eruptions have, in some countries, particularly in France, been regarded as the genuine product of vaccine virus, and have accordingly had the epithets applied to them of *vaccine*, *vaccinal*, and *vacciniform* eruptions.

"3*d*, That in those cases in which it seemed to the observers to be doubtful whether the varioloid eruptions coexistent with, or suc-

ceeding to vaccination, arose from the infection of cow-pox, of small-pox, or of chicken-pox, they have not unfrequently been termed *anomalous eruptions.*

"4*th*, That the *vaccinal* and *anomalous* eruptions have exhibited appearances similar to those eruptions which, in this country, have been sometimes denominated chicken-pox, and sometimes small-pox modified by vaccination, as is evident from the appellations which they have received, of *vesicular*, *pustular*, and *horny* eruptions.

"5*th*, That inoculation performed with the matter of these general vaccinal eruptions, has most commonly produced a *local* affection only; but that in a few instances, a *general* eruption has been produced similar to that from which the matter had been taken.

"6*th*, That in those countries (Prussia in particular) in which the varioloid eruptions occurring after vaccination, have not been supposed to proceed from the action of cow-pox virus, they have been supposed to arise either from the infection of chicken-pox, or from that of small-pox.

"7*th*, That of those who have supposed that the varioloid eruptions in the vaccinated, have proceeded from the contagion of chicken-pox, some (as M'Donald and Heim) have believed this disease to be a modification of small-pox, and others, a distinct and specific disease.

"8*th*, That under the appellation of *spurious* small-pox, have been included by practitioners all those various forms of varioloid eruptions which I have described in my former letter, (from p. 20 to 27, and from p. 30 to 44,) as having occurred during the late variolous epidemic in Edinburgh, in those who had previously gone through either variolation or vaccination; and that of these forms of varioloid diseases, the mild vesicular eruption, or *new chicken-pox*, has constituted but a small proportion even in the vaccinated, and a still smaller proportion in the unvaccinated.

"9*th*, That the numerous diagnostic characters between *spurious* and *genuine* small-pox, so ingeniously suggested by Heim, are by himself allowed to be difficult in their application to individual cases.

"10*th*, That the matter of the eruptions considered to be chicken-pox by Heim, and by those who have adopted his diagnostic characters, was capable of producing, and actually has produced, general eruptions.

"11*th*, That the matter of eruptions, exhibiting in every respect the appearances which occur in small-pox *modified* by vaccination, has frequently failed in producing a *general* eruption, though the *local* pustule excited by it has not unfrequently been accompanied by a febrile action.

"12*th*, That in all places where vaccination has not been universally adopted, the varioloid eruptions which have been observed to occur in the vaccinated, during the prevalence of variolous epidemics, have been usually regarded by the enemies of vaccination as the genuine product of small-pox contagion, and as proofs of the failure of that practice.

"13*th*, That the varioloid eruptions which have been observed to occur in the vaccinated, have been represented by the advocates of

vaccination in other countries as well as in Britain, as the consequences either of *imperfect* vaccination, or as cases of *chicken-pox* or *spurious small-pox*.

"14*th*, That in every country in which small-pox have prevailed epidemically, since the introduction of vaccination, spurious small-pox have been observed, and have attacked chiefly the vaccinated, or those who had previously passed through either the natural or inoculated small-pox; and, accordingly, that in every town and village in these kingdoms, in France, Wirtemberg, Holland, America, the West Indies, and the Island of Ceylon, in which the late small-pox epidemic has occurred, small-pox and chicken-pox are recorded to have *coexisted*.

"15*th*, That the vaccine matter which has now been employed for twenty years upon the continent of Europe, in America, and in both the Indies, as well as in this country, does not appear to have suffered any deterioration in its qualities from cutaneous eruptions, or other causes, but has continued, during the whole of this period, to communicate to those inoculated with it, all the security it has ever done against the attacks of small-pox, and against the dangers of that disease.

"16*th*, That the *vaccine* and *varioloid* eruptions seem to have occurred as frequently in those countries in which the operation of vaccination has been performed, with three, four, or more punctures, as in Scotland and America, where that operation is usually performed by making one or two punctures only.

"17*th*, That the possibility of the occurrence of genuine small-pox after perfect vaccination, which was so long and so generally denied by the Central Committee of Vaccination in France, and by the advocates of that practice in other countries, has at last been admitted to occur in proportions, varying from one or two in a hundred, to one in several millions!

"18*th*, That the epidemical small-pox, which have spread themselves so extensively over the greater part of the globe since the year 1814, have been observed, in almost every place in which they have occurred, to attack a considerable number of those who had previously passed through small-pox, and have rendered the possibility of the occurrence of *secondary* small-pox, which was so strenuously denied by the first medical authorities, a point about which there can now no longer exist any just grounds for difference of opinion.

"19*th*, That while the epidemical small-pox, which have prevailed during the last seven years, have been every where of a most malignant kind, destroying a large proportion of the unvaccinated attacked by them, very few examples have occurred of their having proved fatal in those who had gone through the process of vaccination; and,

"*Lastly*, That the diminished susceptibility for small-pox contagion,—the general mildness of the disease when it does occur,—and the almost universal security from danger in the vaccinated, must now be considered as the real advantages which have hitherto been derived from the inestimable discovery of Dr. Jenner." pp. 387—392.

Such are the results which this acute and judicious observer has obtained, not merely from the careful contemplation of the phenomena which he has personally witnessed, but from the attentive and deliberate collation of the best authorities on the phenomena observed both in this and other countries, where variolous diseases prevail, and vaccination is practised. It will be seen, that the researches and investigations which have been instituted, both by Dr. Thomson and others, especially in consequence of the epidemic occurrence of variolous and varioloid eruptions after vaccination, have added very considerably to our knowledge of the natural and genealogical history of the disease. Although it has been fortunately proved that we did not overrate the powers of the vaccine contagion in counteracting the malignity of the variolcid, and that we were not trusting to a useless or inert agent, yet we have learned, that at the time when this antidote was proposed, we were not so intimately acquainted with the nature of small-pox and its varieties, as our subsequent experience has enabled us to be; and one good effect of this is, that while we know and can estimate more precisely the influence which the vaccine disease exercises over the variolous, we can now explain more satisfactorily those anomalies, the occurrence of which, in vaccinated individuals, occasioned such perplexing exceptions to principles believed to be certain, and threatened to render even the antivariolous power of vaccination an unfounded fiction. We discover, in short, that the irregularities, deviations, and apparent exceptions to that which was originally believed the natural and true form, are none other than those which existed before the introduction of the practice of vaccination, and might, with equal readiness, have occurred in the persons of individuals who had passed through the variolous disease, but whom the vaccine had never affected. On the actuality, as it may be named, of the occurrence of varioloid eruptions after true small-pox, inoculated small-pox, or even vaccination, we cannot speak so confidently as Dr. Thomson is assuredly qualified to do; but we must say it appears to us singular enough, that, with such a body of evidence as Dr. T. has shown may be collected relative to the natural history of variolous eruptions and their modifications, the facts relating to the anomalies and deviations should have been so studiously suppressed or denied, both by inoculators and vaccinists, that they seem to have been completely forgotten or unknown, till the actual experience of the late epidemic has at length brought them into notice. It is easy to see, that if this unfair method of managing both inoculation and vaccination had not been employed, we should have been spared both the foolish controversies, and the irrational errors into which we have been led in regard to iterated variolous and post-vaccine eruptions. We

may now regard it as established, that the variolous poison generates not only a pure and uniform pustular disease, passing through regular stages of growth, maturity and decline, but also eruptions not strictly pustular, and which do not observe the same regularity in their phenomena; that some of these eruptions may be of a tubercular character, slow in their progress, and imperfect in their suppurative process; others of a lymphatic or vesicular nature, affecting apparently the cutaneous tissue less deeply, and consequently not presenting the distinct suppurative phenomena of the true pustule, and others in which the character may be so mixed, and the phenomena so irregular, as to defy any classification whatever. We may now conclude, that these modifications in the morbid phenomena, arising from the operation of the same agent, are to be ascribed, as our author has shown, to differences of individual constitution, to peculiar states of the atmosphere, and occasionally to the particular circumstances in which the individuals exposed to the variolous poison may be placed. We think, further, that it is consonant to correct observation to assert, that any one of these varieties of varioloid eruption does not render the human body insusceptible of another, and consequently that the same contagious poison may twice, perhaps oftener, give rise to a train of morbid phenomena. With these inferences before us, we cannot discover that the iterated occurrence of the pure and perfect variolous disease in the same individual can be established with a certainty which would satisfy every inquirer; and the readers of Dr. Thomson's sketch will perceive, that it is so difficult to determine the precise marks of a perfect and unequivocal eruption, and, providing two eruptions occur in the same person, so difficult to institute an exact comparison, and establish their absolute identity or similarity, that this point must necessarily remain undecided. It is, further, of no practical importance; and it is sufficient to know that various eruptions proceed from the same morbid agent.

Although it is probable that the artificial communication of the variolous poison may have some influence in modifying the nature of eruptions occurring after its employment, yet it does not appear, from the investigations of our author, that this modification is so notable as might be expected. The very ample examination of eruptions, whether epidemic or sporadic, subsequent to the introduction of the practice of inoculation, presents, so far as we can discover, no cases which cannot be paralleled in those observed previous to this time.

Lastly, on the possibility of a specific difference in the nature of the morbid poison, we feel some difficulty in forming a decided opinion. Our readers are aware, that the learned author of this work is peculiar in believing, that no evidence has

been yet adduced to demonstrate that a characteristic difference exists between the contagious agent which gives rise to small-pox, and that which generates the chicken-pox eruption. It cannot be denied, that the arguments necessary to establish the specialty of character must be of a positive and affirmative nature; and it is equally undeniable, that none but negative proofs have been hitherto adduced. In such circumstances, we believe we must infer, that the hypothesis of Dr. Heberden was admitted on insufficient evidence, and would require to be again subjected to a strict and critical investigation, before it can be considered the object of any positive or decided conclusion.

Reflections on Gall and Spurzheim's System of Physiognomy and Phrenology, addressed to the Court of Assistants of the Royal College of Surgeons in London, in June, 1821. By JOHN ABERNETHY, F.R.S. Surgeon to St. Bartholomew's and Christ's Hospitals. London: Longman, Hurst, Rees, Orme, and Brown. 1821. pp. 75.

(From the New Edinburgh Review.)

This pamphlet will prove a little startling to those flippant gentlemen who cannot mention the names of Drs. Gall and Spurzheim without a sneer, or write of their doctrines except with expressions of contempt. Mr. Abernethy, who is indisputably a very high physiological authority, has designated Dr. Spurzheim as a person, "who had made the motives of human actions a particular study, and as possessing also great intellectual powers, combined with benevolence and caution in decision;" and he has spoken of the doctrines on which he comments, as affording a "representation of human nature, which, when viewed in its proper light, and with due attention, must please every one." "It is not," says he, "like others heretofore presented to us, which appear in comparison but as mere diagrams, the result of study and imagination; whilst this seems like a portrait from life by masterly hands." "It is not, indeed," he continues, "exactly like any individual, but capable, by alterations, of being made to resemble every one; so that, by the help of a few touches, we are able readily to show 'virtue her own image, vice her own deformity,' in all their diversities." These observations do equal credit to the sentiments and understanding of the author; and we have no doubt that they will tend, in a powerful manner, to forward the progress of the science which he recommends. The pamphlet itself, as the author ingenuously states in his preliminary advertisement, "does not contain any thing *new*," and cannot be said to have made any additions to the system in favour of which it

is written; but it will have great weight with the *imitatorum pecus*, who are incapable of original reflection, and who esteem authority of greater importance than truth. It will have the effect also of inducing many persons to examine, who, deterred by the low buffoonery of the witlings, previously stood aloof; and we believe from experience, that the consequence of examination will be a conviction of the substantial truth of phrenology as a science.

To quicken the resolution of such of our readers as may be disposed to examine and form a judgment for themselves, we are almost tempted to enter upon a scrutiny of the pretensions of the opponents. We could, with little difficulty, show that their jokes are the offspring of a shallow understanding, and their contempt the mere manifestation of a naturally overweening faculty of self-esteem, offended with every opinion that stands in opposition to their own. We could demonstrate, on the principles of human nature, that the truly bitter enemies of phrenology are most likely to be the least estimable in character, for a general knowledge of the doctrines would confer on mankind such a sagacity in judging of exciting propensities and intellectual productions, as would be fatal to their pretensions. The public would then assign superficial smartness to combativeness, misrepresentation, slander, and vulgarity, to great destructiveness, joined with a deficiency in the sentiments of benevolence and justice; and illogical deductions to defective causality. But phrenology, in showing that some individuals are endowed by nature with such unfortunate combinations, excites us to feel compassion for their follies, and to pass by their aggressions without anger. We spare the public libellers of the system, therefore, in the mean time, and not without a hope, that the science may extend its benefits even to them, if not in the way of opening their eyes to their own imperfections, and leading them to a zealous endeavour after amendment, at least in depriving their perversities of every mischievous effect, by unfolding the sources from which they proceed.

We may observe, farther, that an ignorant condemnation of phrenology will very shortly be neither a safe nor creditable passport to reputation for superior good sense and discrimination. It has been demonstrated in the clearest manner, that no facts or arguments are known, which prove, *à priori*, the science to be unfounded, and that therefore its truth must resolve itself into a question purely of fact, depending for its solution upon observation. Such being the case, it requires very little sagacity to discover, that the testimony of even one individual of ordinary honesty and penetration, to the truth of the doctrines, outweighs, in the scale of philosophical estimation, the sneers of a thousand opponents, who are destitute of practical know-

ledge of the subject. In place of one such witness appearing in favour of phrenology, it must be obvious to every one, that there are hundreds, if not thousands, daily testifying to its truth. We believe that no individual, moving in enlightened society, is to be found, who does not number among his acquaintances at least one phrenologist; and we would candidly ask the reader, whether, in such circumstances, it is either wise or becoming, upon mere prejudice, and infatuated idolatry for old opinions, to resist the force of this multiplied evidence, and to discountenance investigation by an affectation of contempt for the intellects of those who found their belief in the evidence of their senses? We observe, indeed, that some opponents lately venture to assert, that they have made observations, and found facts hostile to the phrenological conclusions; but these persons betray, by the style and spirit of their statements, such inveterate prejudices against the doctrines, as evidently prevented them from entering on the investigation with that seriousness and openness to conviction, which are indispensably requisite to render their testimony of the smallest weight. One individual whom we have particularly in view, first assumed, as is evident by his own statement, that the whole system is *a hypothesis* invented by Drs. Gall and Spurzheim; and, after committing himself with the public by a profusion of puerile criticisms against it, proceeding entirely on this assumption, he winds up his observations by an assertion that he had noticed contradictory facts. This is not the mode by which a philosophical investigation can be successfully conducted. The inquirer ought to divest himself of every preconceived opinion, to view the statements of the phrenologists as mere matters of fact to be fairly examined, and ought by previous study to qualify himself for conducting the investigation with philosophical precision; but not one opponent, whose objections we have read, has deigned to pursue such a course.

The conceit, for it deserves no better name, that Drs. Gall and Spurzheim *invented* the system, and did not discover it by observation, is one great obstacle to general inquiry. Viewed as a fact in nature, the most imbecile understanding cannot look upon phrenology with disrespect, nor the most timid disposition regard it with apprehension. Nothing is more certain, however, than that the founders of the science have no pretensions to the merits of invention; and, for our own parts, we should as readily believe, that the human arm created the planetary system, and launched the various orbs of which it is composed through the immensity of space, impressing upon each the laws which it observes, as that the intellect of man could invent such a scheme of philosophy as phrenology displays. To set this

point at rest, however, we may state very briefly the history of the science.

Dr. Gall was the discoverer of the principles of the doctrine, for he first observed that particular mental powers bear a relation to particular portions of the brain; and he and Dr. Spurzheim have followed out this discovery, with ceaseless activity, during a period of more than twenty years. The organ of language was the first which was ascertained; next to it the organ of music; then the propensity to construct; while the sentiments of pride, veneration, and firmness, and the organs of acquisitiveness and combativeness, were almost simultaneously observed. In the years 1800 and 1801, Dr. Gall communicated his discoveries by lectures in Vienna. In the beginning of his inquiries, he did not, and could not, foresee the result to which they would lead, or the relation which each successive fact, as it was discovered, would bear to the whole truths which time and experience might bring into view. He perceived, for instance, that the intensity of the desire for property bore a relation to the size of one part of the brain; and he announced this fact by itself, and called the part the organ of theft, because he had found it largest in thieves. When he had discovered that the propensity to destroy was in connexion with another part of the brain, he announced this fact also as an isolated truth, and named the part the organ of murder, because he had found it largest in criminals condemned for that crime. In a similar way, when he had discovered the connexion between the sentiment of benevolence and another portion of the cerebral mass, he called the part the organ of benevolence; and so on in regard to the other organs. This mode of proceeding has nothing in common with the formation of an hypothesis; and so far from a disposition to invent a theory being conspicuous, there appears, in the disjointed items of information which Dr. Gall at first presented to the public, a want of even an ordinary regard for systematic arrangement. His only object seems to have been, to furnish a candid and uncoloured statement of the facts in nature which he observed; leaving their value to be ascertained by time and farther investigation. If the reader will inquire into Dr. Gall's publications, he will be convinced that this was really the manner in which he unfolded his discoveries. We possess a small work, entitled "Dr. J. F. Gall's System of the Functions of the Brain, extracted from Charles Augustus Blodes' Account of Dr. Gall's Lectures, held on the above subject at Dresden; translated from the German." The year of the publication is not mentioned, but we suppose it to have been about 1804. In it, the following list of organs is given:

1. The impulse to propagation.
2. Tenderness for offspring.
3. Memoria realis (individuality).
4. Locality.
5. The organ of the recollection of persons (form).
6. The disposition of colouring.
7. Sounds.
8. Arithmetic.
9. Words.
10. Languages.
11. Mechanic skill.
12. Friendly attachment and fidelity.
13. Valour.
14. Murdering.
15. Cunning.
16. The organ of larceny.
17. Height (self-esteem).
18. Ambition and vanity.
19. Circumspection.
20. Comparative perspicuity (comparison).
21. Metaphysical perspicuity (causality.)
22. Wit.
23. Inference.
24. Good nature (benevolence).
25. Theosophy (veneration).
26. Perseverance (firmness).
27. Mimickry (imitation).

The reader will find also in the Monthly Magazine for 1806, a plate and a list of organs exhibiting the discoveries then made, in which, as in the preceding instance, there is no philosophical principle of classification, no attempt at analysis of the powers, but a mere description of development and accompanying manifestations; and there are still blanks in the views of the cranium, as well as faculties wanting in the list.

But what has followed? As soon as observation had brought to light the great body of the facts, and the functions of the faculties had been contemplated with a philosophical eye, a system of the philosophy of man presented itself almost spontaneously to view, (as already remarked in the language of Mr. Abernethy,) "not like others presented to us, which appear in comparison but as mere diagrams, the result of study and imagination; whilst this seems like a portrait from life by masterly hands." When the work of discovery had proceeded a certain length, the facts appeared to be connected by relations which it was impossible sooner to perceive, and system and arrangement at length suggested themselves where disorder only had previously reigned. Hence it was not till after the science had been cultivated for several years, that its real nature and utility were discovered; and it was only then that its form became systematic. Hence also its character and its name changed as it proceeded; and from being at first a mere species of physiognomy, it has become a science capable of the most useful and interesting applications. If the discoveries of Drs. Gall and Spurzheim had, from the beginning, assumed the aspect of a regular and polished science, and had been hammered into accordance with the prevailing doctrines of the times, it would have been clear that they were theorizing; for such a beautiful system could not have arisen at once out of observation of facts. The history of discovery in chemistry and the other experimental sciences shows that facts in nature may for a time appear not only isolated and uninteresting, but absolutely inconsistent and perplexing, until future discoveries shall have linked

them into the chain of causation, and exhibited them in all the beauty and importance of essential parts in a system of truth. The very fact, therefore, that out of this mass of incoherence and inconsistency, there has at last arisen a system of philosophy deserving of just admiration, creates a strong *prima facie* presumption that it is founded in nature; and to refuse, in such circumstances, to inquire into its merits, is a mark, not of a superior understanding, but of a mind closed by prejudice against the perception of truth.

Mr. Abernethy is far elevated above the littleness of mind on which we have now commented, and while he candidly informs us that he does not admit every point of phrenology to be true, he shows that he has surveyed it with an enlightened eye, and he liberally acknowledges the merits which it appears to him to possess. He admires chiefly the phrenological doctrines, as distinguished from the organology, but he admits all the fundamental physiological principles which are interwoven in the system; and even as to the organology, he appears to us to object rather to its abuses in practice than to its foundation in nature.

"Convinced," says he, "of the truth and importance of Mr. Hunter's opinions relative to the nature of life, I am now desirous of inquiring how any portion of physiological knowledge obtained since his time may have affected his sentiments in general, and particularly with respect to the functions of the most important organ in the animal economy of the human race. That the brain of man, and of animals similarly constituted, is a great emporium of nervous energy, that it sympathizes with every part of the body, and bestows or excites animation and energy throughout the whole, has not, I believe, been disputed; yet the experiments of Le Gallois, and the observations of Gall and Spurzheim, have rendered it highly probable that the brain of animals ought to be regarded chiefly as the organization by which their sentient principle becomes possessed of a great variety of perceptions, faculties, and disposition to various kinds of action."

In page 64 he is still more explicit.

"I readily concur," says he, "in the proposition, that the brain of animals ought to be regarded as the organization by which their percipient principle becomes variously affected. First, because in the senses of sight, hearing, and smelling, I see distinct organs for the production of each sensation. Secondly, because the brain is larger and more complicated in proportion as the variety of affections of the percipient principle is increased. Thirdly, because diseases and injuries disturb or annul particular faculties and affections, without influencing others. And, fourthly, because it seems to me more reasonable to suppose that whatever is perceptive may be variously affected by means of vital actions transmitted through a diversity of organization, than to suppose that such variety depends upon original differences in the nature of the percipient principle."

So much for the general principle that the brain is the organ of the mind; on the question relative to the situations of the different organs, Mr. Abernethy has the following observations:

"I see no objection to the classification of the superior intellectual faculties which Gall and Spurzheim have made, into comparison, analysis or causation, and combination; because this arrangement refers to all the elementary powers cognizable in the actions of the human mind: powers which seem exclusively to belong to man. I am even pleased with the station which the organs supposed to be productive of these powers are said to occupy, for we find them arranged in a regular phalanx on a part of the head peculiar to man, the summit of the lofty forehead. As I have said in the lectures addressed to this college, if we find the head more produced in parts peculiar to man, it is reasonable to suppose that he will possess more of the intellectual character; and if in those parts common also to brutes, that he will possess more of those propensities in which he participates with the brute creation. We are all naturally physiognomists; and almost every observant person has remarked the amplitude of this part of the head to be indicative of intellectual power. Shakspeare denotes the eye as the herald of the mind, which so quickly proclaims its mandates that he compares it to the winged Mercury, new-lighted on a fair and ample hill, so lofty, that, Olympus like, it seemed to touch the heavens."

In regard to the situation of the organs of the propensities and sentiments, the author continues,—

"The representation which Gall and Spurzheim have given, places the sentiments and dispositions in their real situation, in the head; yet, as the brain affects the heart and other parts of the body, mankind have been induced in all ages to believe them situated in the more evidently affected organs; still, I could not but feel surprise that so late and so eminent an anatomist and physiologist as Bichât should represent the heart to be the seat of feeling, and the head of thought. Anger and fright may greatly augment or diminish the actions of the heart; yet the intelligence producing either of these emotions was conveyed by the eye or ear to the brain; first affecting the mind, and secondarily the heart. Good sentiments and dispositions, with serenity of mind, seem to make 'the bosom's lord sit lightly on its throne,' and produce sensations which may be said '*circa præcordia ludere.*' Whilst, on the other hand, 'some sorrow rooted in the memory, some irrasibly written troubles of the brain,' make us feel 'as if the full bosom wanted to be cleansed of that perilous stuff that weighs upon the heart.' But it is surely as simple, and more correct to express ourselves as Gall and Spurzheim would have us, by saying, that a person has benevolent or just sentiments, as that he has a good or an upright heart."

As already mentioned, it is chiefly as a system of the philosophy of the mind, that Mr. Abernethy recommends the doctrines of phrenology. After noticing that the science may be studied

in this light, altogether independently of its connexion with organization, he continues as follows: "First, then," says he, "I admit, nay, even admire the simple proposition that man and animals resemble one another, in each possessing, in various degrees, instinctive and urgent propensities to perform certain actions." These propensities, "though they operate without the influence of reason, are, however, in man regulated by that power. Yet with respect to the results produced by their operation, it may be affirmed that animals as far surpass mankind, as man by his rational faculties and sentiments becomes in other respects superior to them." The author then, in a manner peculiar to himself, enters into an examination of several faculties. He admits "*the propensity for construction*," and "the faculty of parental affection and attachment." "This instinct," says he, "generally belongs to females, but the males also may possess it." "All these facts (alluded to by the author) are equally true with respect to the human race, in which this instinct evidently operates independently of reason, for though rational considerations may dictate and enforce maternal care, they can never produce maternal affection."

The author next treats 'OF IMITATION.' "As man," says he, "is an associating animal, he participates largely in this propensity, and there are some persons who possess the disposition and talent of imitation in so high a degree, that they are led to hurt the feelings of others by offensive mimickry." In speaking of the 'DISPOSITION TO COMBAT,' Mr. Abernethy observes, "that man also possesses this kind of animal courage: this propensity to combat and contend, is well known to the English; for it forms a striking feature in their national character. The people seem fond of boxing, wrestling, and cudgel-playing, and become hardy and resolute by such practices." The 'PROPENSITY TO DESTROY,' is next considered. "That some men," says the author, "are even pleased with cruel sports and sights, and feel no compunctious visitings of nature in actions which excite horror in others, must, I believe, on examination, be admitted. It seems, therefore, allowable to suppose, that man participates with brutes in possessing, in a greater or less degree, a propensity to injure or destroy that which he dislikes, or which his judgment deems necessary to be destroyed." Mr. Abernethy appears disposed to admit also, 'the faculty of AFFECTION AND ATTACHMENT,'—'the PROPENSITY TO CONCEAL,'—'the PROPENSITY TO HOARD,'—'the FEELINGS OF CAUTIOUSNESS AND DETERMINATION.' He concludes his observations on the animal propensities in these words: "We see a great variety in animal character,—we see the same in man; and that these animal propensities operate in him independently of reason, and often in opposition to its dic-

tates, is well known. And so urgent also are these impulses, that some have believed them to be uncontrollable, and founded on this belief the pernicious doctrine of necessity."

Mr. Abernethy proceeds to inquire into the intellectual faculties. "Secondly," says he, "I admire the very explicit manner in which Gall and Spurzheim have shown that, though man resembles animals in possessing, in various degrees, the foregoing propensities, and even most of the inferior intellectual faculties, he yet differs from them in possessing others, and also superior rational faculties and sentiments, which dignify his nature, and exalt it above his present station." He notices the faculties of Calculation and Language, and of Individuality; approves of the classification of the intellectual faculties, and is pleased with the situation of the organs of these powers, in the terms which we have already quoted.

The sentiments of Benevolence, Conscientiousness, Self-esteem, and Love of Approbation, are next considered; and the author in general approves of the phrenological views entertained of them. We are pleased to observe, that he has also a correct apprehension of the effects of the combination of the organs; a part of the system which has proved a stumbling-block to superficial inquirers. This part of the doctrine is so important in itself, that we beg the indulgence of the reader for submitting Mr. Abernethy's views of it somewhat at length.

"I had great gratification in being intimate with Dr. Spurzheim whilst he remained in London, and in a kind of badinage I proposed to him questions which he answered with facility, and in a manner that showed a very perfect knowledge of human nature. For instance, I inquired whether he had discovered any organ of common sense? and he replied in the negative. I then demanded in what that quality consisted? and he answered, in the balance of power between other organs. This answer shows why a quality so peculiarly useful is common to all, and rare in any; for there are but few who have not prejudices or partialities, hopes or fears, or predominant feelings, which prevent them from pursuing that middle and equal course of thought and conduct, which unbiassed consideration, or common sense, indicates and directs. I inquired of Dr. Spurzheim if there was any organ of self-control, or if not, whence that power originated? He said, 'It is the result of a predominating motive; thus, justice may control avarice, and avarice sensuality.' In short, I readily acknowledged my inability to offer any rational objection to Gall's and Spurzheim's system of phrenology, as affording a satisfactory explanation of the motives of human actions.

"Their representation simplifies our notions of such motives, by lessening the number of reputed agents; thus, the want of benevolence and virtuous dispositions, with excitement to anger, produces malevolence; and this, conjoined with concealment, malice. I need not recite a variety of instances, since they are sufficiently apparent.

We perceive that mankind may be naturally benevolent, conscientious, and humble minded, or the reverse; just as they are naturally timid or fearless, resolute or fickle, candid or reserved; we perceive that they may have natural talents, qualifying them to excel as mathematicians, calculators, linguists, draughtsmen, or musicians; and also that they may possess various degrees and kinds of intellectual power. Yet, whatever may be the natural character or abilities of the man, he neither deserves praise nor censure, for he is but what nature made him. We further perceive that real virtue consists in the efforts which we make to cultivate our talents, rational powers, and moral sentiments, and to educate and control the inferior propensities of our nature, so as to allow to each only its proper sphere and mode of action, thereby rendering our conduct conformable to the acknowledged laws of moral rectitude and religious obligation. And if we were to examine our own conduct and that of others by this test, we should probably discover but little in the former which we are warranted warmly to approve, or in the latter, strongly to condemn. Nature has not only given to man good and honourable sentiments, but also made it his highest gratification to employ and indulge them; so that we rarely deny ourselves this supreme pleasure, except when prevented by selfish considerations.

"Now, Gall and Spurzheim have represented the office of the superior intellectual faculties and sentiments as affording motives and possessing powers that can and ought to control and educate the inferior propensities. But there have been and are some who seem to wish it believed that human actions are under the control of these inferior propensities; allowing, indeed, that the fear of great personal evil may deter us from compliance with their urgent solicitations. They also represent the absence of guilt but as the result of the want of temptation. Yet, if we inquire why such degrading and disgusting views of human nature are presented to us—why opinions are inculcated, which tend to weaken virtuous efforts by declaring their inefficacy? We find that the authors of them, from a review of their own conduct, and that of the baser part of mankind, are convinced that there is no virtue in them, and therefore infer that others must equally want it. Thus do they presumptuously 'call virtue hypocrite,' and malevolently 'pluck away the rose from the fair bosom of innocence and place a blister there.'

"But though the possession of original dispositions, faculties, and sentiments, may create a tendency to certain actions, yet Gall and Spurzheim admit that it is education which produces knowledge and character: it is the disposition and ability to do what has been repeatedly done, and with progressive improvement, that gives us talents and habits of thinking, feeling, and acting, in a particular manner. It is repetition, or education, by which also motives are rendered so predominant, that we feel the indispensable necessity of implicit and energetic obedience to their commands, which is called enthusiasm, and which has given rise to glorious deeds, dignifying and exalting human nature far above animal existence. Religious sentiment, conscientious justice, patriotism, and even personal honour, have induced mankind to bear the greatest evils without betraying any of the unworthy propensities of our nature."

After the foregoing admissions, we must say, that we felt some surprise at certain objections started by Mr. Abernethy against the organology of the system, and cannot easily reconcile several of the opinions which he maintains, to say nothing of the extraordinary assent he has given to the exploded and most unphilosophical opinions of Hartley. We are not certain, however, that we rightly understand the extent of some of his objections. He admits, as we have seen, the brain to be the organ of the mind; thinks it exceedingly probable that the organs of the animal feelings are situate in that portion of the cerebrum common to man with the brutes; admires the situation of the intellectual organs in the forehead, and decides in favour of placing the organs of the sentiments or feelings in the brain, and not in the heart or abdomen. When, therefore, he says, "I anticipate nothing but mischief from Gall and Spurzheim's physiognomy or cranioscopy becoming generally known or accredited," we presume that he does not mean to declare against its truth, but only to deliver his opinion that its general diffusion, although it were true, may be dangerous. If this be his meaning, we beg leave to differ from his conclusion; for it appears to us highly unphilosophical to dread harm from the extension of physical knowledge, and especially when it relates to our own constitution. Besides, it "is ill arguing against the use of a thing from its abuse." If phrenology be *true*, the laws which it discloses will continue to operate whether we attend to them or not; and, if they do operate, we are more likely to receive benefit from an enlightened attention to their course than from remaining the ignorant subjects of their sway. It is true that knowledge, like every other advantage, may be abused by the perversity of man; but Mr. Abernethy certainly would not desire us to root up the vine, and give the olive to the flames, because drunkards and debauchees pervert the products to their own destruction; nor would he erase the faculties of hope and ideality from the mind, because some individuals, in the excessive indulgence of these powers, pursue objects visionary as the midnight dream, and commit extravagancies wild as the madman's schemes: nor, on the same principles, ought he to proscribe phrenology because wicked men may pervert its principles to evil ends.

We cannot admire the author's declaration that he "candidly told Dr. Spurzheim that, though he admitted his opinions (of the physiognomy) might be true, *yet he would never inquire whether they were so or not, because* he believed the proposed mode of judging one another to be unjust, and likely to be frequently productive of erroneous and injurious conclusions." This appears to us to have been very like a resolution to shut his eyes against the truth, lest a knowledge of it should lead to

harm; but the author's candour and penetration luckily were too great to enable him to adhere to this intention. He goes on to inform us that,

"Notwithstanding this resolution, I did not absolutely shut my eyes against those facts which obtruded themselves before my view; and I acknowledge that I have been often struck with the coincidence between the character and talents of persons and the form of their heads, which was such as is said to be indicative of their peculiar dispositions and abilities. The intelligence and candour of Dr. Spurzheim, however, induced him to say to me, that it matters not how many coincidences we may observe; one contradictory fact must disprove them all, with respect to the asserted locality of any organ; and such contradictory facts have, as I believe, also presented themselves before me."

It is necessary to offer a few remarks on this last observation. Phrenologists generally admit, that a single decisive case against any particular organ would afford good ground for expunging it from the list; but we must attend a little to the circumstances requisite to constitute a case of the decisive nature supposed. The principle on which the admission rests is, that nature is constant in her operations; that she never creates one individual who sees by means of his ears, and hears by means of his eyes, in contradistinction to the common constitution of mankind. If, therefore, we were to meet with even one instance of a person destitute of eyes, who nevertheless enjoyed all the advantages of sight, we should be entitled to conclude that, however closely connected the eyes might be with this sense, they were not the only organs of vision. In the same manner, if a particular part of the brain be truly the organ of benevolence, we may as soon expect to discover vision without eyes, as the sentiment powerfully manifested when the organ is remarkably deficient. If one instance could be produced, of a person whose whole life was eminently distinguished by the constant exercise of a truly Christian charity, in whose mind neither ostentation or pride, nor any sinister motive lurked, to contaminate in their source the deeds which appeared so fair to the spectator, and in whose head, nevertheless, the organ of benevolence was decidedly defective, we would at once surrender this portion of the science. Such a case, we verily believe, has never yet been found; and if those who speak of adverse instances were to record their facts, they would appear to be of a very different description. The apparent anomalies by which novices are not unfrequently startled, result entirely from their ignorance of the effect of the combinations. Suppose an individual is found in whom destructiveness and combativeness are large, such persons would imagine that he must be cruel, passionate, and vindictive, as a matter of course.

But the principle that the energy of the faculties bears a relation to the size of the organs, holds in regard to the organs of the intellect and sentiments, as well as to the lower propensities. If, therefore, to the endowment supposed, we add a large benevolence, veneration, justice, love of approbation, firmness, and ideality, and a full intellectual development, it is obvious that the preponderance in size will now be in favour of the higher organs; and that, in perfect accordance with the principles of the science, the predominating character ought to be, not that of fury and of outrage, but of meekness and mildness, of veneration, complaisance, prudence, and justice.

It will, perhaps, be urged, that, according to this mode of philosophizing, the functions of individual organs cannot be discovered. Let us, however, from the combination supposed, take away the large intellectual organs, the benevolence and the justice, and if the individual then is not fiendish and ferocious in his dispositions, we would abandon combativeness and destructiveness as unfounded. Such was the development of the head of John Bellingham, the murderer of Mr. Percival, a cast of whose skull is in our possession; and the whole life of that individual was a manifestation of an excessive irritability of temper, and an infatuated tendency to evil. Thus the functions of the individual organs were discovered, and can be proved only by instances in which a particular organ is so very large that it forms the prominent feature in the head, or so very small that the corresponding mental deficiency cannot be overlooked or compensated by cultivation. Cases of this description are not difficult to be met with, when observation is resorted to with a truly philosophical desire to discover the truth. The fear of appearing ridiculous must be surmounted, and heads must be examined, not looked at merely, but felt, wherever an uncommon development appears. The *mauvaise honte* which generally prevents this decided mode of investigation, is really destitute of support from reason; for the head is as much a product of nature's hands as the mountain cliff, or the tendril which borders the lake; and if it is not beneath the dignity of the philosopher to chip the one with the hammer, or to paddle in the water to gather the other, it will not derogate from his honour to subject the head of a human creature to philosophical examination. Distinguished characters chiefly merit attention. If Byron be destitute of ideality, Campbell of hope, or Moore of wit, these will be facts on which the opponents may justly found a triumphant refutation of phrenology.

Some of our author's hypothetical objections scarcely demand notice. For example, "Suppose," says he, "a man to have large knobs on his head, which are said to indicate him to be a knave and a thief, can he expect assistance or confidence from

any one? Must he not, as all of notoriously bad character do, consider himself to be an outcast from society, having no means of serving himself but those with which nature has endowed him, and which, in the instance and under the circumstances referred to, may indeed be those of fraud and cunning?"

In answering the objections contained in this supposition, it is proper to make a distinction. If, in the case supposed, acquisitiveness and secretiveness are decidedly large, and the organs of the moral sentiments and intellect small, and if phrenology be true, then the individual would, in fact, be under strong temptations to steal, whenever an opportunity occurred. Supposing him, then, to be really the victim of this unhappy tendency, and it is well known that some persons are so, whether would it be better for himself and society that his disease were known, and his actions watched, so as to avert opportunities of indulgence, or that a thick veil of secrecy was thrown over his dispositions, and he was permitted to go on indulging his propensities, till he was hanged for having done so? If, on the other hand, the moral and intellectual organs are supposed to be so fully developed that the individual enjoys the power of restraining and directing to legitimate indulgence the propensities in question, then the judgment from the "knobs on his head" that he was a knave and a thief, was a false judgment, made, not by a phrenologist, for he would have surveyed the whole development, and estimated the restraining effects of the higher powers, but by an ignorant pretender to the science, and of course his decision becomes an example of abuse of the doctrines.

Mr. Abernethy thinks that the system of physiognomy will not assist us in the education of children, as, in his opinion, "their actions are sufficiently, and," he thinks, "more clearly declaratory, than the forms of their heads, of their sentiments, dispositions, and talents." That this is the case to a person who has a powerful tact in discriminating motives from actions, and a very imperfect knowledge of the organology of the system, we have no doubt; but there are other persons, to whom phrenology is calculated to be of greater utility. Mr. Stewart, with every writer on mental philosophy, has observed the extreme difficulty which ordinary minds experience in attending to intellectual phenomena, and the absolute impossibility which many feel in analyzing processes of thought, and resolving feelings and perceptions into their elementary parts. The mass of the people, therefore, would probably never attain to a truly enlarged and philosophical view of the mind, and its capacities and laws, by the common methods of instruction; and yet, until this is the case, we cannot consistently look for the full advantages of a rational system of education. It appears to us, that a mind, which is not capable of deep metaphysical abstrac-

tion, may be perfectly adequate to understand the functions of the various phrenological faculties, when distinctly explained, and when the powers of comprehension are aided by references to real characters, in which the different faculties are displayed. Such a mind may also learn the situation of the organs. Suppose then, that an individual so instructed is entrusted with the care of children, the sagacity which could not have traced obstinacy and self-will to their sources, by a metaphysical analysis of the impulses which prompt to resistance, might be able to distinguish the organs of self-esteem and firmness, when decidedly prominent in the head; and the individual, although averse to refer the dispositions, when simply manifested in action, to nature, would probably feel constrained to do so, when the organs were thus forcibly brought into view; and passionate severity would cease to be relied on as an infallible corrective for the conduct. It is by thus opening up the nature of the mind to persons of ordinary attainments, and by enabling them to guide their conduct towards the young by principle and reason, that phrenology, in our opinion, will prove itself of most essential service to education.

Mr. Abernethy continues, "It is asserted that this system of physiognomy may assist us in the cure of insanity. But how that dreadful malady is to be cured, except by the usual medical and moral management, I am at a loss to comprehend." In answer to this observation, we remark, that phrenology pretends chiefly to aid us in the application of "the usual medical and moral management," and to do so by showing us what feelings and intellectual powers in the patient's mind are particularly powerful or deficient, so that we may present objects to excite the one or allay the other with certainty and intelligence, as difference of occasion may require. Men are too prone to take their own feelings as the standards of human nature in general; and physicians, and the keepers of the insane, are not exempted from this imperfection. When, therefore, a timid, miserable, and a desponding patient is to be cured, and the object in view is, in the words of the author, "to tranquillize or remove that state of nervous irritation or disease which may have led to the establishment of insane ideas," it is certainly of importance to discover early whether the individual possesses a strong talent for music, a great ideality, much veneration, a great constructive tendency, a powerful adhesiveness, or a philosophical capacity, so that the excitement may be addressed to those faculties on which it is most likely to produce an effect. The keeper, ignorant of phrenology, would require to discover, by numerous experiments, what object would most powerfully interest the patient; every unsuccessful trial would produce additional irritation, and from the peculiarity of the individual mind he might

not at all hit upon the means fitted to attain his end. With a knowledge of this science, on the other hand, he would be able to discover the natural character with much greater certainty and facility: and, through the cerebral development, its strong and weak points would stand revealed before him, so as to render mistake much less likely to occur.

We beg leave to suggest another way in which the science may prove advantageous in the cure of insanity. Mr. Abernethy admits the brain to be the organ of the mind; and he seems not to deny that different parts of it are connected with different mental powers. Now, it is well known that insanity is generally distinguished into melancholy and madness; that these are considered as distinct diseases; and that the medical treatment of the one is frequently different from that used in the other. Phrenology, however, would lead us to doubt the correctness both of the diagnosis and the treatment in the cases referred to. The symptoms of madness are rage, excessive excitement, and fury; and those of melancholy are fear, timidity, and despondency. The former is treated by bleeding, blistering, and depletion; the latter by stimulants and excitement. But suppose inflammation, or some other internal stimulating influence, to attack the organs of destructiveness and combativeness, excessive activity of these propensities, attended with all the external manifestations of madness, would ensue. If, on the other hand, the *same internal cause* were to operate upon the organs of *cautiousness*, the result would be an excessive feeling of apprehension and despondency, and all the symptoms of decided melancholy. But when the *causes* are the same, is there any reason for the difference of the treatment? If excitement is resorted to as a remedy for an excessive activity of the organ of cautiousness, on what principle is depletion used in the same disease of the organs of combativeness and destructiveness? It is obvious to us, that the next paroxysm of fury must be thereby, in a tenfold degree, increased. If, on the other hand, depletion be a proper remedy for a diseased organ of destructiveness, on what principle ought it to be unfit for a diseased organ of cautiousness? These questions we leave for the consideration of Mr. Abernethy; and, in the mean time, we shall merely say, that phrenology is calculated to render the subject of insanity more intelligible not only to the physician, but to the lawyer.*

* This observation, and indeed the whole nature of the questions of insanity that come before a civil court, are so amply illustrated in a case which was lately tried in the Court of Session, that we must be excused for adverting to it:—

B—— *against* G——.

J—— B——, student of divinity, having succeeded to some property on the

It is time to bring this long article to a conclusion. We hold ourselves indebted to Mr. Abernethy for having delivered his

death of a brother, the Court of Session, 10th July, 1816, appointed W—— G——, his sister's husband, *curator bonis*, to manage his effects, (on the certificate of two medical practitioners that he was imbecile in mind.) In a year and a half afterwards, a petition was presented to the court in name of Mr. B—— himself, and of certain persons as his interdictors, alleging that he was capable of managing his own affairs, and craving that the curatory in favour of Mr. G—— might be recalled. This brought on the question, whether he was imbecile or not; and the court remitted to the sheriff of Edinburgh, then Sir William Rae, to lead a proof, and to report upon the subject. The following evidence was given to show that Mr. B—— was sane:

J—— W——, Solicitor of Supreme Courts, deposed, that he became acquainted with B—— in 1781, when at the high school of Canongate; that B—— "was an excellent scholar, and generally dux of his class." B—— was employed by Mr. Inglis, the master, "to assist him." "He was uncommonly good natured and obliging, and not deficient in point of understanding, but quite the contrary." "Down to within these two or three years, there was no material change on his mind; but, during this last period, he was not so correct as he used to be."

The Rev. A—— J—— of S—— deposed, that about ten or twelve years ago, B—— taught a school at Elphinston, and applied to the presbytery of Haddington to be licensed. He was remitted to two or three of the presbytery, to examine him privately; and the report was favourable. He was taken, therefore, upon public trials, and was *remitted* to his studies,—a mild mode of rejection.

J—— B——, esq. advocate, deposed, that B—— officiated as his private teacher in 1799 or 1800, and it did not appear to the deponent at that time that there was any defect in his mind. He saw him for half an hour in the house of J. A. Murray, esq. advocate, in summer 1818, and for any thing he could see on that occasion, there was no material alteration on the state of his mind. His impression was, that his mind was entire, but that his manners, habits, and dress, were calculated to lead to a supposition that his mind was imbecile.

J—— D——, coach-maker in Edinburgh, deposed, that he was at the Canongate school with B——, and about thirteen years ago he attended the deponent's son as a private teacher, and has called upon him since. When at the Canongate school, B—— was the best scholar in his class; he was not defective in understanding, and was not made game of by the other boys. His mind continued equally free from defect when he attended the deponent's son, and he considers his understanding as perfectly entire at present.

The Rev. J—— S——, Edinburgh, deposed, that, so far as the deponent could judge from conversing with him, he seemed to be possessed of all his faculties, as far as to be able to perform the ordinary duties of life, and this in February, 1818.

R—— R——, shoemaker, deposed, that B—— was very *siccar* (anglicè hard) in his bargains, and spoke rationally on many subjects; and his gestures were the worst thing about him.

Mr. M——, cutler, P—— M——, baker, and other tradesmen, all deposed that B—— made bargains with them, with sufficient attention to his own interest, and conducted himself rationally.

On the other side,

The Rev. J——P——, Edinburgh, deposed, that B—— and he attended the classes in the college together: that the boys about the college treated him as a fool, and that his impression at this time was that B—— had been born a fool. He has observed no change on his faculties, and considers him still as an imbecile person.

P—— B—— insurance broker, considers him as a weak-minded man.

R—— W——, merchant, had a fixed impression that B—— was silly in his mind.

Mrs. P——, 17, Crosscauseway, considers him as altogether an imbecile and weak person, and incapable of managing his own affairs.

opinions at all upon the subject of phrenology, as his doing so will excite inquiry. We are pleased also with the liberality and candour of his remarks. Where we differ from him, we have endeavoured to assign reasons; and as truth is the only object in view, we trust he will not feel displeased at the freedom of our remarks. As to the science itself, we conclude, in the words of an ingenious friend, who has surveyed phrenology with a comprehensive and philosophic eye, "Whatever facilitates the study of human nature," says he, "will prevent the moral and political evils which proceed sometimes from excessive confidence, and sometimes from excessive distrust; and when these evils are removed, all the noble and generous qualities of our nature will shoot up of their own accord. There is no danger that human nature will ever become too transparent. Concealment is no necessary ingredient in human happiness. Vice may shrink from the light; but innocence, and even that mixture of virtue and vice which does not affect the original principles of social union, will always be most happy where it is most exposed to observation. Even the worst natures will become happier. They will have

R—— K——, writer, deposed, that his general impression was that B—— was crazy.

Dr. A——, Dr. W—— F——, and Dr. G—— W——, all reported that B—— was highly imbecile and deficient in understanding.

The sheriff of Edinburgh gave in a report to the same purpose; and the court held him to be imbecile and refused his petition for recal of the curatory under which he had been placed.

It is impossible to read these contradictory statements without surprise; and an unreflecting mind might suspect want of discernment or candour on the part of the witnesses. But, in the first place, this case shows us how extremely vague the notions are which ordinary thinkers attach to the word faculties; and, in the second place, the fact revealed by phrenology, that some faculties may be diseased or deficient, while others are entire, removes every difficulty.

We have seen B——, and can testify that his head presents a great development of language, lower individuality, acquisitiveness, secretiveness, conscientiousness, and cautiousness; while the organs of the reflecting faculties, although distinctly marked, are decidedly deficient in size. Hence, the witnesses who had attended to the manifestations of his faculty of language alone, deposed that he was an excellent scholar. The shoemakers and tradesmen who had sold him goods, having found that, under the influence of his powerful acquisitiveness, he drove a hard bargain, swore that he was a shrewd and *siccar* man. The presbytery of Haddington, at his first examination, which was confined to the languages, were pleased with his appearance; but the moment the manifestations of the reflecting faculties were required in a sermon, his deficiencies of understanding appeared, and the presbytery accordingly rejected him. The medical gentlemen, and the sheriff who attempted to reason with him, pronounced the same opinion.—Phrenology is thus not only a key to the whole case, but affords the only means of reconciling the apparent contradictory statements of the witnesses, who were, in fact, above suspicion.

The individual now alluded to, appears to us to possess the sentiments and perceptive faculties in a sound state, and an average degree; and his reasoning powers are rather deficient in strength than deranged. We have heard that his case is under appeal to the House of Lords, and we look with considerable interest for their decision.

less hope of gratifying their evil propensities; they will have greater inducement to restrain them; and the restraint imposed by necessity will become habitual and easy. Those who cannot govern themselves ought, for their own happiness, to be subjected to the authority and observation of others."

Biography.

MEMOIR OF THE LATE DR. RIGBY.

(From the London Medical Repository.)

On Saturday, Oct. 27th, died, at his house in St. Giles's, Norwich, Edward Rigby, Esq., M.D., whose talents, character, and honours, claim from us a record, which, in common with so large a circle of friends, connexions, and admirers, as it falls to the lot of very few men to possess, we lament was not postponed to a more distant date: for it may be said, in the language of Burke, that "he was a public creature; he had in himself a salient, living spring of generous and manly action;" and the longer (as it seems to human apprehension) life had been indulged to him, the greater would have been the benefits that life would have enabled him to diffuse amongst his fellow creatures—for *usefulness* was the motive, path, and end of his existence.

Edward Rigby was born at Chowbent, in Lancashire, on the 27th of December, 1747; and was fortunate in being placed early under the care of Dr. Priestley, from whose example he derived that love of philosophical research which formed one of the leading characteristics of his powerful mind. At the age of fourteen, he came to Norwich, and was apprenticed to Mr. Martineau, an eminent surgeon. At the expiration of his term of indenture, he completed in London the customary course of a medical education, and returned to Norwich, to exercise his profession.

While yet a very young man, his observation was strongly drawn towards some extraordinary facts that occurred in his midwifery practice; and he printed a treatise on the Uterine Hæmorrhage—a book which excited considerable attention; and though condemned by Dr. Denman, then at the head of that particular branch of science, has stood the test of time, has passed through five editions, has been translated into French and German, and is now in universal estimation amongst medical men.

Mr. Rigby was gifted by nature with a fine person, and an amenity of disposition and manners, which, aiding his acute intellect, unwearied assiduity, and extensive knowledge and skill, soon lifted him into the first rank of practice: and while his services were sought by the opulent and the middle orders of society, his kindness of heart, and his earnest desire of assisting his fellow creatures and promoting his own acquirements, led him into the hovels of the poor, whensoever he was solicited. It was in his nature to bring his whole mind into action upon all occasions; and thus, while he visited in his professional capacity, his cheerfulness, his powers of conversation, and his universal desire of imparting the knowledge he possessed, rendered him as delightful as a companion, as respected for his skill. Amongst the poor he was almost as often their benefactor as their physician.—Thus experience early matured a judgment not less strong by nature, than conversant with the theory, and in the literature of his art.

The same benevolent dispositions, and the same ardour in his pursuits, led him to turn a portion of his little leisure towards political economy, and he studied deeply and attentively the interests and the management of the poor. The workhouse of his own city became an object of earnest consideration; and he was led to believe that a great saving might be made in the consumption and distribution of the provisions and clothing, together with an increase of the comforts of its unfortunate inhabitants. In 1783, he became a member of the Court of Guardians; and he immediately suggested the propriety of inquiry, which he supported by a detail of certain facts that had reached him. The Court, however, negatived his first motions. He nevertheless repeated them, till at length his perseverance obtained the desired end; a committee was appointed, and the regulations he suggested were adopted. All this, however, was not effected without much obloquy, particularly from those whom it was Mr. Rigby's principal desire to benefit. The populace even rose into serious riot when the regulations were first acted upon. But in a pamphlet which he published in 1788, containing the reports of the committee and the details of account, he triumphantly proved the advantages derived from his system, and showed that a saving of between *two and three thousand pounds per annum* had accrued to the city, while the diet of the poor had been improved. The only public notice this singular and valuable service attracted, was the presentation of a piece of plate, which was the donation of a few private persons, who entered into a subscription for that purpose.

Mr. Rigby's next publications were, "A Plan for the Charitable Inoculation of the Poor," and "An Essay on the Red

Peruvian Bark." Thus we see that one of his favourite objects, because one of the most important to human life, was the prevention of the ravages of that dreadful malady, the small-pox.—We shall have occasion to notice hereafter the activity of the same benevolent principle.

About the same time, the attention of philosophers was strongly turned towards the cause of animal heat; and in 1785, he printed a pamphlet, in which he started a very ingenious theory, and applied it to the treatment of cutaneous disorders, inflammations, and some other diseases. And although the chemical discoveries of Black, Crawford, and others, afterwards established a more certain hypothesis, this work exhibits strong marks of the author's ability and medical judgment; for he therein recommends the application of refrigerants to the skin in inflammatory diseases: and the present doctrine of cold affusion, as introduced by Dr. Currie, differs little from the treatment proposed by Mr. Rigby. It is also especially worthy of remark, that the expedients so successfully adopted by his relative, Captain Parry, to preserve the men from scurvy during his recent voyage, as related in that officer's journal, accord exactly with the recommendations in the "Essay on Animal Heat." In the same year (1785) Mr. Rigby recorded the facts attending Mr. James Deeker's two ascents in a balloon from Norwich, and produced a little work on Sugar. In 1786, he projected and established the Norfolk Benevolent Society, by which a fund was instituted, to aid and support the widows and orphans of medical men who might be left in distress. This society still exists; its means have been augmented by several legacies and donations; and it has been the instrument of cheering the dark days of respectable age, as well as of assisting the families of several worthy members of the profession.

It happened also to Mr. Rigby to render a far more important service to Norwich than its inhabitants are at all aware of. During a visit to his native county, his kindness of heart led him to call upon his nurse, whom he found employed as a weaver, and using *the flying shuttle*. He immediately saw the immense superiority of this instrument over that thrown by the hand; he caused one to be purchased, and brought it to Norwich. On his arrival, he introduced the subject to Mr. Maltby, who treated his application as an impertinent interference. Mr. Rigby then applied to Mr. Patteson, who instantly discovered the benefit, and erected a loom for its employment, thus giving effect to Mr. Rigby's design. Since that time Norwich can best tell how much it has been benefited by the introduction of the flying shuttle into its manufactories. In 1788, he broke for a short time from his numerous engagements, and visited France, a part of Italy, and Switzerland, in company with W. Morgan, Esq., the celebrated calculator, and actuary

of the Equitable Office, and another friend. It so happened, that they reached Paris just at the explosion of the revolution. He was detained in that city a week, during which the attack of the Bastile and the massacre of the Thuilleries took place. He became acquainted with Turgot, Roland, and other persons distinguished at that period; and he has written a very animated and interesting journal of the events, which remains among his unpublished papers.

In 1789, Mr. Rigby was admitted a member of the London Corporation of Surgeons, and of the London Medical Society.

With a mind thus constantly occupied in the contemplation and prosecution of public good, it may reasonably be imagined that Mr. Rigby had little desire for civic honours. In point of fact, he was rather averse to encounter duties so much at variance with professional habits. In 1802, however, he was solicited by many friends, who were anxious to uphold the respectability of the corporation, to become a candidate for the vacant gown. The hope of still further improving the economy of the workhouse, or rather of preventing the erection of a new building then in contemplation, was the grand motive which prevailed to induce him to accept office. He was elected in a very honourable manner, and in 1803 received the letter for sheriff, which office he served. In 1805, he succeeded to the mayoralty, and supported the chair with dignity and hospitality. In 1806, he was elected a fellow of the Linnean Society.

We must here retrograde a little in our narrative.—In 1802, we have stated, Mr. Rigby was elected an alderman. Soon after his appointment, he successfully opposed a plan for building a new workhouse, at an expense of £30,000, for which powers from Parliament had been previously obtained. He showed the inadequacy of the sum the guardians were authorized to raise by the act; he exposed the errors of the workhouse system; and advocated to conviction the superior advantages of out-door allowances, both as respected pecuniary savings, and the morals, the comforts, and happiness of the poor. Committees were appointed to ascertain the facts; and the result was a report, which stated, that by the system of out-door allowances the expense per head was 12¼d., whereas the cost of maintenance in the house amounted to 3s. 6d. per head. Of the meagre and evasive notices of this report, however, Mr. Rigby complained heavily and justly. The result was the alteration of St. Andrew's workhouse, in lieu of erecting a new one, by which an immense saving was made to the city.

Mr. Rigby next turned his attention to the article of provision, and to the improvement of the medical treatment of the poor, and particularly to a system for preventing contagion and

the spread of the small-pox. Committees were appointed for both objects. Of the eight clauses in the report delivered by the medical committee, it came soon to be a matter of regret that three only were acted upon.

The report of the provision committee (drawn by Alderman John Brown) exposed considerable differences between the sums paid for bread, butter, and meat, and the quantities apparently consumed. A division in the duties of management in consequence took place, and a committee to superintend the in-door arrangements was specially appointed.

During the year of Mr. Rigby's mayoralty, the philanthropic Mr. Neild visited Norwich; and published in the Gentleman's Magazine a report concerning what he saw in the workhouse, which was very disgraceful to the discipline there established. This occasioned much literary controversy. In the same year the small-pox raged in Norwich, when the mayor called a public meeting, to combine the general aid in checking its progress. In 1807, 1808, and 1809, its ravages swept off two hundred and three persons, and the appalling numbers of this mortality were recorded and preserved by a regulation adopted during Mr. Rigby's mayoralty, and this regulation has had no small effect in convincing the public mind of the necessity of preventive measures. Had the proposal for insulating such casual patients as fell under the disease been acted upon, there are strong grounds for believing this calamitous amount of death might have been wholly precluded.

In 1812, Mr. Rigby learned that the disease had again appeared in the neighbourhood; and at his suggestion a general vaccination was adopted with great effect. Of all these matters he published a general account in 1812, together with a report drawn by himself of the pauper vaccination.

The natural desire of gradually retiring from the incessant and constantly increasing labours of a most laborious and responsible profession, induced Mr. Rigby to think of taking the degree of Doctor of Medicine, and henceforth of practising as a physician. He, therefore, took his diploma in 1814. But in order to remove the delicate anxiety of females whom he had hitherto attended, he consented in many instances to continue his services to his old patients, while they were needed in one department; thus demonstrating the same kind attention to the feelings of his connexions, for which his life has been remarkable.

But though he thus retreated from the incessant calls upon his time, under which neither his health nor strength of body or mind, uncommon as they were, could have borne up, he never for a single moment abandoned the search after useful knowledge, which formed the assiduous, never ceasing occu-

pation of his entire thoughts. Change of employment was to him sufficient relaxation. Agriculture had long been a favourite subject of his regard. He had for years become the cultivator of his own estate, at Framingham, near Norwich, where he had planted extensively.—The enclosure of Poringland Heath enabled him to add to his landed possessions; and that once barren and dreary waste now smiles with his ornamental plantations and rich fertilization. In 1818, he published, "Suggestions for an improved and extended cultivation of Mangel Wurzel." He has since printed an account of Mr. Coke's services to the agricultural world, under the title of "Holkham and its Agriculture," which has met uncommon success, having gone through three large editions in about as many years, although reprinted entire in "The Pamphleteer." This work has also been translated and printed in France, by a French agriculturist. He has since translated and published the travels of Mr. Chateauvieux, on account of the facts relating to the agriculture of Italy there narrated; and, finally, has given the practical application of the Holkham system to smaller establishments, in his account of "Framingham and its Agriculture," printed last year.

Up to the hour of his last illness, he was employed in a sixth edition of his greatest work, "The Essay on the Uterine Hæmorrhage."

The reputation of his writings on agriculture caused him to be elected an honorary member of the Philadelphia Society for promoting that science; and he was also of the Horticultural Society of London.

In addition to the honours we have recorded, he was presented with the freedom of the city previous to his election as alderman; he had been surgeon, and was till his death a physician to the Norfolk and Norwich Hospital and to the Lunatic Asylum, president of the Philosophical Society, a director of the Norwich Fire Office, an honorary member of the Society of Artists, and a member of several public committees, to the duties of all which he seldom failed strictly to attend.

Thus scarcely a year has passed without being marked by some act of public advantage, emanating from his powerful and useful mind. Yet strange to say, (we blush while we record the fact) the eminent and valuable public services of this actively good man have been recognised by no public acknowledgment; and while the walls of our ancient hall of magistracy glare with the portraits of not a few men distinguished principally for their attachment to the rage of party, there exists no trace of the public gratitude to one who so largely contributed to the universal benefit of his wealthier and of his poorer fellow citizens. We cite this as one amongst many striking proofs of

the prevalence of party over the public cause. Dr. Rigby was a consistent Whig, but has neither cared for nor encouraged "the two-penny politics" of the place. His large and noble and elevated services to humanity were therefore not observed by those whose grovelling researches were directed only towards the insect breeding ordure of paltry partizan triumphs.

In private life, Dr. Rigby's purse was ever open to the wants of worthy claimants, and we have reason to know that his charity and his friendship were always unostentatiously extended to those who needed his aid. He was placid, though energetic and affectionate in his manners; but his attention to domestic ties was necessarily much interrupted and abstracted by public and professional duties, as well as by the constant habit of intellectual employment, from which he never relaxed for a single moment. His general attainments in literature and science were highly respectable; and his principal pleasure was the visit to Framingham, five miles from Norwich, which he made almost daily in the afternoon, returning in the evening to be in readiness to attend any calls that might be made upon him.

His personal habits were simple, frugal, and abstemious: he rose very early, drank no wine, and enjoyed, till within a few days of his death, an almost uninterrupted series of health and vigour. Even so late as ten days before his decease, he performed a journey of sixty miles, after visiting his Norwich patients, in one day, although just relieved from a state of considerable muscular pain, under which he had been suffering for some weeks. In fact, his mind never yielded; he was enthusiastic in the pursuit of good, and unwearied in its exercise.

Dr. Rigby was twice married—first, to Sarah, co-heiress of John Dyball, Esq.; and, secondly, to Anne, daughter of W. Palgrave, Esq. He has left issue two daughters by the first, and two sons and six daughters by the second lady, who has borne him twelve children. Already his progeny has arrived at the fourth generation. He died in his 74th year.

Our readers will require no apology from us for this protracted recital of the events of Dr. Rigby's long and meritorious life: for never, we will venture to assert, has any citizen of Norwich deserved or enjoyed a more extended regard than this excellent, this revered man.

ABBE HAUY.

(From the London Medical and Physical Journal.)

Died, at Paris, on the 1st of June, the Abbé Hauy, member of the Royal Academy of Sciences, and canon of Notre Dame. This

distinguished mineralogist met his death in consequence of a fall, by which he fractured the neck of the os femoris. He fell down on the 14th of May in his cabinet, in consequence, it is believed, of slipping his foot, as he did not subsequently show any affection of the head, which would lead to the idea of his having suffered any apoplectic seizure. He was attended by M. Almand, surgeon to the Salpétrière; but the pain, partly arising from the accident, and partly from an attack of nephralgia, prevented the nature of the accident from being discovered for some time. An abscess formed, which was evacuated; and his strength from this period declined with rapidity, till the morning of the 1st of June, when he died. His interment took place at Père la Chaise, on the 3d of June, which was attended by Gay-Lussac, as president of the Institute, and a considerable body of its members.

ABBE SICARD.

Died lately, at Paris, in his 80th year, the Abbé Sicard, director of the Institution for the Deaf and Dumb. He was born at Touseret in 1742, and was educated at Toulouse; and early in life entered the church, becoming vicar-general of Condour and a canon of Bourdeaux. M. Cicé, archbishop of the diocese, having resolved to establish an asylum for the deaf and dumb, Sicard was despatched to Paris, to make himself acquainted with the system of the Abbé de l'Epée, whom he afterwards succeeded in 1789. During the revolution, learning and benevolence proved no protection, and the Abbé Sicard had nearly shared the fate of the unfortunate Lavoisier. He was detained prisoner till the 4th of September, when he was carried before the National Assembly, where he made a speech, which, joined to the interest made in his behalf, seems to have procured his liberation.

After a considerable suspension of his duties, M. Sicard was at length restored to his charge; and the institution being now supported by M. Chaptal, at that time minister of the interior, began to flourish. In 1800 a press was established, by which means his pupils became initiated in the art of printing; it was here that the works of the Abbé were principally published. One of his first pupils at Bordeaux was Massieu, who followed him to Paris, and whose astonishing acquirements tended, in a remarkable degree, to give celebrity to the system of education adopted by his master.

The school of the Abbé Sicard was an object of great interest and general attraction to all strangers visiting Paris. The readiness which he always showed in explaining his method,

and the proofs of cultivated mind and useful acquirements given by his pupils at their public exercises, have been the means of leading to the establishment of similar schools in various parts of Europe. The name of Sicard is associated with the system of De l'Epèe, which he greatly improved, and deservedly ranks high among the benefactors of mankind.

Medical and Philosophical Intelligence.

Anatomico-Pathological Researches upon Induration of the Nervous System, by M. Pinel, Jun. Physician to the *Hospice de la Salpétrière. Read at the Academy of Sciences, the 27th of May,* 1822. —M. Pinel has detailed four cases of induration of the encephalon or spinal marrow, occurring in patients affected with idiotism: upon this organic derangement he makes the following observations, after having given his cases: "Examined attentively, the indurated nervous tissue resembles a compact, inorganic mass; its colour, consistence, and density, cannot be better compared than to those of a hard egg; the cerebral substance is sunk down and compressed; it appears entirely deprived of blood vessels; the eye can perceive no trace of capillary vessels in it: submitted to the action of fire, it becomes shrivelled up, produces a strong and permanent odour, and leaves a blackish, shining, and compact residuum. A portion of sound brain, exposed to the same action, gives opposite results; it dilates, gives scarcely any odour, and the residuum is brownish and light. The induration appears to affect the medullary more than the cineritious substance; I have never observed it in this latter tissue. The nervous pulp of the diseased part tears off in fasciæ, and in fibres, the direction of which varies in the brain, cerebellum, and spinal marrow. In the brain, the fibres are seen radiating over the whole periphery of that organ, and proceeding in a converging manner towards the corpora striata; the induration renders this disposition of the fibres very apparent; they enter into the corpora striata, traverse the optic thalami, mingle in the peduncles at a small portion of cineritious substance, pass out, before the pons varolii, and, having arrived at the inferior edge of the tuberculum annulare, continue with the spinal marrow, of which they are evidently the prolongation: reascending from the spinal marrow towards the brain, it is still more easy to be convinced of it.

"In the cerebellum, the direction of the fibres is different, when we examine it at the interior or exterior of the organ. Externally, the diseased tissue tears in horizontal, and almost circular, fibres; internally, the nervous filaments are seen to proceed and reunite towards the tuberculum annulare.

"If a portion of indurated spinal marrow be torn in the direction of the median line, the medullary filaments of the right side are observed to tear into the left, and *vice versâ*.

"This general disposition of the nervous fibres, for a long time denied, but put beyond all doubt by the works of Winslow, Vicq-d'Azir, M.M. Cuvier, Gall, Chaussier, and Beclard, is confirmed by pathological anatomy. What we are able to say respecting the causes of the induration of the nervous system is reduced to suppositions and conjectures: it is probable that in idiots from birth, the induration of the brain is the result of a disease of the fœtus in utero. What can be the nature of this malady? Is it inflammation? We have no knowledge upon this point of pathological anatomy; it cannot be forgotten, however, that induration of the tissues is a frequent termination of their inflammation; that the cellular system, the liver, and other parenchymatous organs, present frequent examples of it, and that the encephalon, being submitted to the same laws as the rest of organism, may likewise undergo the same alterations.

"Induration of the nervous tissue being a disease very little known, it is not astonishing that we have yet no curative means to oppose it. Is it probable that we may ever find any? How can the nervous pulp, when so considerably deranged, be restored to its natural state?

"If induration may facilitate the knowledge of the structure of the encephalon, it may likewise throw some light upon the history of its functions. Already, through the alterations of the nervous system, we have been enabled to learn several physiological facts of the highest interest, relating to the different lesions of sensibility and motion. The application of pathological physiology to the history of the cerebral functions can only afford positive results: it only can complete our knowledge of them, and may rectify many errors. These researches ought, therefore, to merit all our care and all our attention." —*London Medical Repository.*

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Experiments upon the Functions of the Roots of the Spinal Nerves. —M. Magendie had been, for some time, anxious to make an experiment for the purpose of observing the effects of the section of the posterior roots of the nerves, which have their origin in the spinal marrow. He had attempted it several times, but without being able to succeed, in consequence of the difficulty of opening the vertebral canal, without injuring the spinal marrow, and producing death, or, "at the least, severely wounding the animal." During the last month, however, a litter of puppies having been brought into his laboratory, he considered them proper subjects for a repetition of his experiment at opening the vertebral canal. With a single stroke of a very sharp scalpel he laid bare the posterior half of the spinal marrow, covered with its envelopes. He then divided with ease, the dura mater surrounding it, and exposed the posterior roots of the lumbar and sacral pairs, and, by raising them with the blades of a pair of small scissors, he was enabled to cut them on one side, without injuring the spinal marrow: the wound was reunited by suture, and the animal watched. M. Magendie at first believed that the limb corresponding to the divided nerves was entirely paralyzed: it was insensible to punctures and the strongest pressure, and seemed likewise immovable; but, to his great surprise, the animal began to move it, in a very apparent manner, although the sensibility was still quite extinct. A second

and third experiment gave an exactly similar result. M. Magendie then began "to consider it probable that the posterior roots of the spinal nerves might have different functions from the anterior, and that they were more particularly destined for sensibility."

He then thought of dividing the anterior roots, leaving the posterior untouched; but he found this easier to conceive than to execute. After some consideration, he decided upon attempting to pass before the posterior roots a species of cataract knife, the blade of which being very narrow, might permit him to cut the roots by pressing them with the edge of the instrument, upon the posterior part of the bodies of the vertebræ; but this plan he was obliged to quit, in consequence of the great veins which the canal on that side contained, and which were opened at each movement in advance. In making these attempts, he perceived that towards the *vertebral dura mater* the anterior roots might be seen united into fasciæ, immediately before piercing that membrane. M. Magendie immediately divided all the pairs which he was desirous of doing, but, as in the preceding experiments, only cut those of one side, for the purpose of comparison: the limb became immediately lax and immovable, whilst it unequivocally preserved its sensibility. He finally cut, at once, both the anterior and posterior branches, when there was an absolute loss of both sensibility and motion. "I have repeated and varied," says M. Magendie, "these experiments in several species of animals: the results which I have just mentioned have been confirmed in the most complete manner, both as regards the anterior and posterior roots. I am following up these researches, and shall give a more detailed account of them in the next number; it is enough for me, at present, to be enabled to assert positively, that the anterior and posterior roots of the nerves which spring from the spinal marrow have different functions; that the posterior appear more particularly destined for sensibility, whilst the anterior seem more especially connected with motion."—*Ibid.*

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Description of an Apparatus for Removing Poisons from the Stomach, invented by Mr. Jukes, Surgeon.—We might with justice be considered to be forgetful of the duty we owe the profession, were we to fail in laying before them a description of a very excellent apparatus which Mr. Jukes, its very ingenious inventor, favoured us with a sight of. It consists of an elastic gum tube, a quarter of an inch in diameter, and two feet and a half in length, terminating at one extremity in a small globe of ivory, with several perforations; the other extremity is adapted, either by screw or by plug (the latter is preferable) to an elastic *bottle* of sufficient size to contain at least a quart of liquid, and having a stop-cock fitted to it, in a similar manner as in the hydrocele bottle. Instead of the *bottle*, a pewter *syringe*, of an equal capacity, may be adapted, in the same manner, to the flexible tube. The operation by the syringe is performed more quickly, and may therefore, perhaps, be preferred by some. In cases where surgeons have neither *bottle* nor *syringe*, the *tube alone* might be made to answer the purpose, if the operator apply his mouth to its extremity, and thereby institute the office of a siphon.

Application.—The patient ought to be placed on the left side, and the *globulated* end of the tube be then carefully passed to the greater curvature of the stomach, either through the mouth or nostril, as may be thought proper. Having previously filled the *bottle* or *syringe* with warm water, at the temperature of 150°, screw or plug it to the tube, turn the stop-cock, and gently force the contents into the stomach. The then diluted contents are to be immediately withdrawn by pulling up the piston; or, if the *bottle* be applied, the same effect will ensue from its elasticity enabling it to recover its original form, by which the fluid contents will return, charged with the poison. This operation ought to be repeated, till the water, which is withdrawn, becomes clear and tasteless.

In Mr. Jukes's experiments, first on dogs, and then on himself and others, assisted by Mr. James Scott, surgeon, in Westminster, the apparatus was proved fully to answer the intended purpose. In these experiments, Mr. Jukes swallowed, first, *two drams* of laudanum; he afterwards gradually increased the quantity, until it reached ten drams: since which, he has administered to several individuals (one of them a female) *one* ounce of laudanum, with an equally successful result. The utility of so well contrived an instrument, arising especially from its being equally adapted to the removal of all the more bulky poisons, must be evident to every one. We consider that Mr. Jukes has rendered an essential service to the profession, and to the community, by its invention.—*Ibid.*

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State of the Skin, &c. in Yellow Fever.—From the facts observed by himself, or recorded by others, Dr. Desmoulins has been led to the following conclusions with regard to the biliary secretion and yellowness of the skin:—

1. That, in yellow fever, there is no increase of the secretion of bile.
2. That the black vomit and dark-coloured stools are the produce of exhalation from the surface of the intestines.
3. That the yellow colour of the skin is produced by the blood in the minute vessels of the cutis, which are in a state of congestion, analogous to that which, in the mucous membranes, gives rise to hemorrhage.
4. That the firmer texture of the skin alone prevents this likewise from ending in a similar discharge.
5. That the yellow colour, which is almost always preceded by petechiæ, is only a sort of general ecchymoses.
6. That the yellow fever is nothing else than a congestion or determination of blood to the skin and mucous membranes simultaneously, principally to those of digestion.—*Med. and Phys. Journal.*

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Sympathy and Sensation.—Dr. Fodera, in a paper read before the Academy of Sciences, has endeavoured to establish a positive distinction between these two phenomena, which have been supposed to have their common origin in nervous sensibility. His opinion, is, that

sensations are always effected through the medium of the nervous system; whilst sympathies are more generally phenomena of vitality, and belong to all organized beings. They are effected by continuity of texture, and are altogether independent of the nerves. In this class of facts M. Fodera ranges the movements of plants, and the different communications of living organs, whether in their functions or diseases.—*Ibid.*

Of Apoplexies of the Cerebellum (Acute Cerebellitis). By M. B. A. Serres, Chevalier of the Legion of Honour, &c. &c.—"In a memoir published some years ago upon the organic diseases of the encephalon, I occupied myself with the solution of the following problem:—An apoplexy being given, to determine its seat by the symptoms. I subsequently established a considerable number of facts. 1. That every apoplexy had its seat in the encephalon, or upon its envelopes; 2. that apoplexies, without paralysis, principally affected the meninges, and gave occasion to diverse effusions according to the degree of irritation of those membranes; 3. that apoplexies, complicated with paralysis, had their seat in the encephalon itself, which was always materially altered in structure, whether there was or was not consecutive effusion; 4. I have also established that the seat of organic alteration varied according to the diversity of the paralysis; 5. I have pointed out the existence of apoplexies of the cerebellum, of which, as far as my knowledge extends, no author has yet given us an example. It is to these last apoplexies that I propose, in this memoir, to draw the attention of practitioners.

"*Case* 1.—A man aged thirty-two years was brought in the night to the Hôtel Dieu, by the National Guard of Paris, in the month of April, 1814. The people who brought him informed me that he had been found upon the Quay with some prostitutes, one of whom, who was present at his reception into the hospital, declared that it was *in coitû*, after having drank to a great extent, that he fell down in the state in which we saw him. His face was extremely red, the heat of his head and neck much elevated, and the pulse very strong and frequent, beating ninety times in a minute. The respiration was interrupted and slow, the inspirations being ten or eleven in a minute; the sleep was profound; he gave no signs of sensibility; and from time to time was affected with convulsive movements, and a *tetanic* rigidity, which continued for three or four minutes. On putting the patient to bed, we perceived that he was in a state of erection; the parts of generation were hot, whilst there was coldness of the extremities. Thirty leeches were applied to the jugulars, and a copious bleeding practised at the foot, which produced no effect. He died on the twelfth day of his entry into the hospital. The rigidity of the penis had ceased four hours before death.

The first idea that occurred to us, at the sight of the unusual erection with which the patient was affected, was the presumption, that he had been making use of some preparation of cantharides, which, as every one knows, commonly produces considerable irritation in the parts of generation. We were prepossessed with this opinion at the time of the *sectio cadaveris*, and it appeared to us still more probable

from the parts being extremely swollen, red, and the *glans* being covered with livid, gangrenous-looking spots. Under this idea some trials were made upon the liquids contained in the stomach and intestines, but which gave no satisfactory result. We afterwards proceeded to open the cranium. The encephalon being clearly exposed, all the *elèves* present were struck, as well as myself, with the great irritation of which the cerebellum in particular had been the seat. The hemispheres of the brain presented no trace of organic disease. The anterior *corpora quadrigemina* were very slightly inflamed, and the posterior to a much more considerable degree. The medullary mass, known under the name of the *processus cerebelli ad testes*, was of a vinous red. The *feuillets* of the cerebellum which covered it, and which, by their junction, form the *superior vermicular process*, had the same appearance, and presented three or four small *foyers* in the interior of the *processus cerebelli ad testes*. There was a very considerable *foyer* which could have contained a musket-ball of ordinary size. The hemispheres of the cerebellum were very much injected, but to a less degree than the *superior vermicular process*. The interior of the hemispheres of the cerebellum, and the bands, known under the name of the *crura* of that organ, showed traces of considerable irritation. It may be readily conjectured that this organic derangement did not confine our views to its seat. The opinion of Gall respecting the connexion between the genital organs and the cerebellum was too well known to avoid being naturally presented to the mind; and it appeared to us that in this case the rigidity of the penis, and the inflammation with which the parts of generation had been affected during the short continuance of the disease, were connected with the irritation of which the cerebellum had been the seat. So extraordinary a pathological connexion could not, however, be established by a single fact: before admitting the opinion, it was necessary to see if it would be verified in analogous cases.

With this view I consulted the numerous apoplectic cases which I had collected, and which served to compose the memoir above mentioned. In that number will be found two histories of individuals who had presented inflammations of the cerebellum, and who, whilst the apoplexy continued, had well marked erections, and copious emissions. One of them was communicated by my colleague, Dr. Lafore, at that time *interne* at the Hôtel Dieu. I was only possessed of these three cases when I published my first work upon the organic diseases of the encephalon, and their great singularity was the principal reason of my not making them known at that time. New facts have occurred to confirm the first; and we may not only regard as positive the existence of apoplexies of the cerebellum, but also hope that we may be able to distinguish the majority of the cases, from those which affect the other parts of the encephalon.

Case 2. Thomas Marie-Anne, labourer, aged fifty-five years, of a sanguine temperament, strong, and much addicted to venery, passed a part of the day of the 19th of April, 1818, in a pot-house. During the night he was attacked with somnolescence, stupor, momentary agitations, and loss of consciousness: he returned no answer to the questions which were put to him; he had erection during a part of the night.

He was brought to the hospital on the morning of the 20th of April, and presented the following symptoms:—Face red and tumefied; slight stupor, from which he might be roused; respiration short, and sighing at intervals; inspirations thirteen or fourteen per minute; pulse 80, full, strong, and frequent; hemiplegia of the left side of the body, principally of the leg; spasmodic agitations of the right side. He was bled from the right jugular vein, a purgative glyster was administered, and barley-water and infusion of arnica ordered for drink, with an antispasmodic potion. On his return to consciousness, after the bleeding, he appeared surprised to find himself in the hospital; in the evening a very strong paroxysm; the face much injected, swollen; heat of the neck very considerable; respiration slow; inspirations eleven or twelve per minute; pulse hard, and more frequent than in the morning, 85, 91, and 94 per minute; profound somnolescence; insensibility to all kinds of excitement; very violent satyriasis; tumefaction and redness of the scrotum; immobility of the left side; a convulsive movement of the right; abundant emission at the end of the paroxysm; bleeding and sinapisms to the legs were made use of; after the bleeding he remained in the same state; rattling in the throat during the night. On the morning of the 21st—face livid, swollen; lips and nose cold; respiration very slow and short; pulse small, irregular, and very frequent; distention of the mouth; tumefaction and lively redness of the genital organs; abundant emissions;—at nine o'clock he died.

Sectio Cadaveris.—On raising the skull-cap, a quantity of black blood escaped. All the sinuses of the dura mater, as well as the confluence of the sinus, were filled with black coagula; the vessels of the pia mater were distended through their whole extent; the substance of the brain showed no particular appearance; but the cerebellum was redder than in its natural state. When a portion of the superior vermicular appendix was cut into, the action of the air quickly communicated to it a lively red colour; the whole of the white substance of this part had changed its colour, and appeared as if it had been macerated in blood. When plunged into water, it lost its colour, but never returned to its natural appearance. Some parts of the interior of the *processes* appeared corroded; but there was no distinct *foyer*. The process was divided from before backwards; we found thick black blood enclosed in the fourth ventricle. This liquid had penetrated forwards into the fissure of Sylvius, and backwards into the calamus scriptorius.

On plunging the cerebellum into water, we observed that this blood proceeded from a *foyer* situated in the central part of the right hemisphere of the cerebellum; its breadth, transversely, was two *centimètres* and one *millemètre* (in. ·82679); from before to behind, one *centimètre* and three *millemètres* (in. ·51182); and its depth might be one *centimètre* and three or four *millemètres* (in. ·51182 or ·55119); with unequal, fringed edges, especially at the external side; it occupied the centre of the grey mass, which is met with in the middle of the hemisphere of the cerebellum; all the white substance was more injected in proportion as it approached the edges of the *foyer;* the coloration formed species of concentric sores round the *foyer;* the

tuberculum annulare, towards the origin of the fifth pair of nerves, was inflamed, as well as the *corpus olivarium*, and the commencement of the spinal marrow; the lungs were gorged with blood, as well as the right cavities of the heart, and the ascendent and descendent venæ cavæ; these organs presented no other organic derangement; the intestinal canal showed nothing particular.

Two other analogous cases are related: the one by M. Mance, *ex-élève interne* of the second class at La Pitié, &c.; the other by M. Dubois, *élève interne* of the first class of the same hospital. In both cases, from the affection of the genital parts, accompanied with the other symptoms, M. Serres announced some lesion of the cerebellum, which prediction was confirmed by dissection.

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*Introduction of Foreign Matters into the Blood.**—M. Majendie pursues his physiological career with great eclat, and his contributors are daily increasing, both in number and respectability. The Physiological Journal before us bids fair to have a most extended circulation, and we shall, in future, pay our respects to its contents more frequently than formerly.

It has been observed, in all ages and countries, that the introduction of putrid and unwholesome substances into the system, as food, has been generally followed by fevers and other malignant diseases, as the histories of families too fully prove. The experiments which have been undertaken by Dr. Gaspard, may, it is to be hoped, throw some light upon the subject; and are therefore deserving of being widely known. The first series of experiments, ten in number, consisted in the introduction of purulent matter (generally a little diluted with water) from common ulcers, into the veins and certain cavities of the bodies of dogs. Before giving the conclusions to be drawn from these experiments, we shall sketch a few of the experiments themselves.

Exp. 1. Into the jugular vein of a dog two drachms of diluted pus were injected. The animal, at the moment of injection, became agitated, and went through the action of vomiting. He whined, appeared weak, and vomited more than six times in the course of the day. An hour after the experiment there was an evacuation of excrements and of thick, troubled urine, which gave some relief. Towards evening, however, he lay sick on the ground, with his legs stretched out, the respiration insensible, and the pulse weak. Ten hours after the experiment he passed blackish, liquid, and extremely fetid stools, which brought about relief, ending in recovery. Next day the dog was well. Two days afterwards three drachms of pus were injected into the other jugular of the same dog. The symptoms were in a more violent degree, and death supervened within the 24 hours. Dissection displayed no alteration in any organs. Similar experiments were again made on a dog, one on the 15th, the other on the 18th September. In the first the dog recovered, after fre-

* Memoire Physiologique sur les Maladies Purulentes et Putrides, sur la Vaccine, &c. Par G. Gaspard, M. D. Journal de Physiologie, par F. Majendie, Membre de l'Institute, &c. January, 1822.

quent evacuations—in the second experiment he died, and on dissection the inferior portions of the lobes of the lungs were inflamed and nearly hepatized. In another experiment, where three drachms of pus were injected, the animal died in great agony of tormina and tenesmus, at the end of five hours. On dissection, the intestines appeared thickened externally—their mucous membrane was inflamed and swollen, especially in the colon and rectum.

In an experiment made on the 21st of September, where half an ounce of pus rather older and more putrid than in the former experiment, was injected, frightful nervous symptoms ensued, as wandering vision, excited sensibility, convulsions, hiccup, staggering, furious delirium, burning thirst, dyspnœa, palpitation, death in two hours, amid dreadful convulsions. On dissection, while the body was yet warm, the venous blood was found very coagulable—the pericardium contained a little effused serum—the left ventricle of the heart was thickened and inflamed, presenting, on its inner surface, spots of the colour of wine lees—the other organs healthy.

In two experiments, where pus was introduced by the serous membrane of the testicle into the abdomen of dogs, without producing violent pain at first, there soon came on vomiting, evacuation of urine, fever, and dyspnœa. In three hours the abdomen was convulsed, drawn in, and very painful on pressure. Death ensued in twelve hours. In the first dog the peritoneum was found reddened and rather inflamed, with about an ounce of bloody inodorous serum. The mucous membrane of the intestines was rather red and inflamed. In the second dog, the peritoneum was inflamed, and contained a small glassful of sanguineous serum, of a fetid odour. The mucous coat was a little inflamed. Introductions of pus into the cavity of the pleura produced nearly similar effects. When introduced into the cellular texture, it was not absorbed and only gave rise to a hard inflammatory tumour ending in suppuration.

From the ten foregoing experiments our author thinks he may legitimately draw the following conclusions.

1st. That pus introduced, in small quantities into the circulation causes considerable derangement of function, from which, however, the animal recovers, after the offending matter has been expelled from the system by means of a critical excretion of urine, or of fœcal discharges.

2d. That when it is introduced at successive periods into the same animal, death is the result.

3d. That when injected into the veins, in a large dose, it produces severe inflammation, namely, peripneumony, carditis, dysentery, &c.

4th. That it appears susceptible of being absorbed, causing inflammation of the serous membrane and cellular tissue, with which it had been in contact.

5th. That the majority of symptoms occurring in hectic fevers, appear to admit of being referred to the presence of pus in the circulation.

Our author is also inclined to infer that, the phenomena exhibited in the course of cancerous ulceration, old dropsies, mercurial ptya-

lism, gangrenous affections, drunkenness, &c. may be attributed to the absorption of a portion of morbid matters into the blood. He thinks, that absorption frequently takes place in various diseases characterized by suppuration, either through the medium of the veins, or of the absorbents, or of both—as will be made more probable by experiments presently to be detailed.

In the 11th experiment, the author threw into the jugular vein of a young sheep, an ounce of cold water, in which had been dissolved six vaccine crusts recently taken from the arms of children, to which was added, a large drop of vaccine matter from an eight day vesicle. On the introduction of this liquid, the animal went through the action of swallowing, but without evincing pain. The animal suffered no inconvenience, and had no cutaneous eruption afterwards.

A similar experiment was performed on a little bitch, four months old, and which had not had the "maladie de chiens." Half an ounce only, of the vaccine solution was thrown in. In an hour the animal refused food and vomited. The vomiting was renewed many times, accompanied with burning thirst, evacuations of urine; and uneasiness which lasted all the day. Next day, however, all was well, and no eruption appeared.

In two succeeding experiments, putrid sanies was thrown into the jugular veins of dogs. In the first, the animal went through the act of swallowing during the injection, and soon after had dyspnœa, uneasiness, and faintness. It lay on its side, refused food, and soon after passed excrements and urine. In an hour, there came on prostration of strength, dysenteric stools, redness of the conjunctiva—pain on pressure of the chest and belly, bilious and bloody vomiting—death at the end of three hours.

On *dissection*, the lungs were found inflamed in a peculiar manner, or rather congested. They had a violet colour, and on them, as well as on the left ventricle of the heart, the spleen, the mesenteric glands, gall-bladder, and subcutaneous cellular membrane, were seen ecchymosed spots or petechiæ. The peritoneum contained some spoonfuls of reddish serum. The mucous membrane of the stomach was somewhat inflamed—that of the intestines greatly so, with black spots, and a bloody gelatinous covering, like wine lees, or the washings of meat. In the second dog, the phenomena and post mortem lesions were as nearly as possible the same.

In an experiment where a fœtid liquid, produced from the putrefaction of cabbage leaves in warm water, was injected into the jugular of a middle-sized dog, copious stools of a liquid, fetid, and soot-coloured appearance, analogous to the dejections in melena, supervened in the course of nine hours, accompanied by vomiting and great prostration of strength. The dog lived three or four days with nearly similar symptoms, and then sank.

On dissection, slight phlogosis was observed in the lining membrane of the bronchiæ—the left ventricle of the heart presented several brown ecchymoses—a fibro-albuminous concretion, weighing two drachms and a half, filled in part the right ventricle of the heart, and adhered to its internal surface by a space not larger than the finger nail. The mucous membrane of the intestines, especially of the

duodenum and rectum, was inflamed in longitudinal streaks, but without any thickening or ulceration.

In a similar experiment, where a putrified solution of the stalks and leaves of beetroot was used, nearly the same symptoms as above were produced, especially dysenteric affection, with bilious vomitings, &c. The *post mortem* appearances were nearly the same. These two experiments, M. Gaspard thinks, prove that putrid vegetable matters act upon the system in the same manner as animal, but in a milder degree.

The next suite of experiments is on the subject of *absorption*. Where putrid vegetable liquor was thrown into the subcutaneous cellular tissue, inflammation arose attended with pretty severe constitutional symptoms, but death did not ensue. Where a similar liquor was injected into the cavity of the peritoneum, severe constitutional symptoms immediately took place, such as vomiting, purging, abdominal tenderness, dyspnœa, tenesmus, and death, in nine or ten hours from the injection of the fluid. On dissection a quantity of vinous coloured, but inodorous effusion was found in the belly—the peritoneum inflamed, and, as it were, ecchymosed—the mucous membrane of the digestive canal, from the cardia to the anus, uniformly inflamed—the cavity of the pleura containing red and bloody serum. These experiments prove, M. Gaspard thinks, that putrid substances are *absorbed* when thrown into the cellular tissues, grounding this assumption on the following circumstances:—1st. The similarity of symptoms resulting from injection into the veins and into the cavity of the peritoneum. 2d. Although the injection into the latter produces violent local symptoms, still derangements supervene in different and remote organs, which can only be explained (he thinks) on the principle of absorption. 3d. The copious secretion of urine which always followed the injection, must, he imagines, arise from the absorption of the irritating liquid. 4th. The absence of the peculiar odour of the injected substance in the fluid found in the peritoneum after death. 5th. The derangements found in the lungs, &c.

Although we have no doubt of absorption in general, yet we think the author's arguments in proof thereof are far from satisfactory. The disorders induced in the system at large, and even in remote structures of the body from an acrid substance thrown on, and producing inflammation in, the peritoneum, might be accounted for, we imagine, without the actual absorption of foreign matters, on the well-known principle of the sympathy which exists between the different structures of the body.

M. Gaspard goes on to remark that the general effects of the introduction of the putrid matters in question, whether into the great cavities or the veins, appear to be a peculiar kind of inflammation accompanied with a species of passive hæmorrhage from the mucous membrane of the intestinal canal. The remaining experiments of M. Gaspard we do not consider as particularly interesting or worthy of translation to our pages at present. We leave our physiological readers to form their own conjectures, and draw their own deductions from those we have above detailed.—*Medico-Chirurgical Review.*

*Pathology of the Brain in Mania, &c.** The exceptions to general rules are undoubtedly more numerous in medicine than in any other science. Idiosyncrasy of constitution so modifies the phenomena of the same disease, as to leave it scarcely cognizable, or assignable to the same class, in different individuals. This is the grand cause of medicine being termed reproachfully a "conjectural art." The reproach does not *rightfully* lie at the door of the physician, but of the disease. If the same causes uniformly produced the same effects—or if there was a possibility of drawing general conclusions as legitimately in medicine, as in other sciences, then indeed we might be *justly* reproached as a faculty of conjecturers. But this is not the case. We have a PROTEUS to deal with, in every disease which assumes as many forms as there are individuals in the world! Those therefore who sneer at the "conjectural art," are generally those who do not know, or do not consider the difficulties attending it:—and, at all events, even *these* will fly to it for aid, whenever the evil hour comes, as come it must to all. Mean time the accumulation of facts, and the more diligent study of morbid anatomy, are daily clearing away the rubbish of conjecture with which the healing art has been defaced since its first institution.

Dr. Hebreart has had excellent opportunities of examining the organ of thought at the Bicêtre, where so many maniacs are collected. He has been able to correct some errors into which physicians have fallen, especially respecting the cerebellum, the diseases of which have generally been considered as very speedily fatal. Our author has accumulated several facts at the Bicêtre, which prove that organic affections of the cerebellum may pass into the chronic state, the same as those of other organs, and not destroy life till after a long period of suffering. Again, it is pretty generally supposed that inflammation of the meninges of the brain can hardly exist without producing the phenomena of phrenitis. Yet our author has proved by dissections, 1st, that in persons who exhibited all the symptoms of phrenitis, no morbid appearances could be detected in the meninges;—and 2dly, that in cases where the said membranes were found greatly disorganized, no phenomena of phrenitis were apparent during life. These cases are brought forward not to discourage inquiry, but to check presumption, and thus to save the physician from the disgrace of a false prognosis into which he is not seldom led by too great propensity to generalize, without considering the numerous exceptions to all general rules in medicine.

AFFECTIONS OF THE CEREBELLUM.

Case 1. A young man fell into a state of idiotism, six years before the date of report, after a course of severe study. He then, during the winter, became so debilitated and scorbutic, that he sunk, exhibiting, for the last month of his life, that prostration of strength and aridity of the tongue and lips which characterize the low fevers. On dissection, the four ventricles of the brain were found distended

* Observations sur quelques Maladies du Cervelet, du Cerveau, et de leurs Membranes, Recuellies à l'Hospice de BICETRE. Par M. Hebreart, Medecin Ord. des Alienées. ANNUAIRE MED. CHIRURGICALE.

with serous effusion. The parietes of the fourth ventricle were disorganized, having degenerated into a yellow and lardaceous substance, that extended more than a line, in all directions, into the cerebellum.

Case 2. A maniac in the Bicêtre, who had, for several years, been considered as incurable, was seized with a complaint which our author looked upon as a common gastric affection, but soon put on the character of low fever, as great prostration of strength, dry and red tongue, encrusted teeth, &c. This state lasted four months, in despite of tonic and stimulant treatment, which produced no amelioration of the symptoms. The patient at length sunk, having the rattles in his throat for eight days before his death. On dissection, a disorganized portion of cerebellum, six lines in diameter, situated at the inferior part of the right lobe, was observed, of a hard consistence, lardaceous, and yellow colour, occupying not merely the cortical, but extending several lines into the medullary substance of the cerebellum. Opposite to this diseased portion the pia mater was destroyed, and the dura mater partook of the yellow appearance of the disorganized cerebellum.

The morbid structure in this and the preceding case, our author rationally imagines to have been of considerable standing. They were probably, he thinks, in both cases, the cause of the insanity.

Case 3. A man of strong constitution, a sawyer of marble, (an occupation not very much calculated to excite the passions,) experienced an accession of mania in 1811, he being then in his 50th year. This attack lasted three months without any lucid interval. Partly by time, partly by the lowering plan of treatment pursued at the Bicêtre, the malady was overcome, and the patient returned to his wife and his former trade, having been six months in the hospital. He continued sane for two years, when he was again brought to the Bicêtre labouring under a milder form of mental derangement than before; but considerably debilitated in physical power, without any apparent disorder of the great functions of the body. His speech was faltering—his tongue slightly paralyzed—his memory obliterated. This state continued several months, and then gradually changed into a kind of low fever characterized by dryness of the tongue, incrustations of the teeth, and general prostration of strength, which symptoms resisted all the tonics and stimulants that could be employed. The debility gradually increased, with scarcely any deviation from a natural state in the pulse or animal temperature—in short, without any of that reaction which is generally observable even in the lowest fevers. The patient at length ceased to exist, after lying fifty-five days without speaking a word, without turning in his bed, without exhibiting any nervous movement or symptom of irritation.

On dissection, the thoracic and abdominal viscera presented nothing remarkable. In the head, all the parts were infiltrated with black blood. ("Toutes les parties infiltrés d'un sang noirâtre.") The lateral ventricles were distended by a considerable quantity of water; but what was most remarkable was a gelatinous degeneration in the left lobe of the cerebellum. All the inferior surface of

this lobe had the consistence of jelly to the depth of three or four lines. It was only necessary to scrape the parts gently with the handle of the scalpel, in order to reduce them to a fluid. When this was done, the lobe, instead of presenting a convex surface, had a concave aspect, the parietes of which concavity were hard, polished, and formed a kind of cyst. Our author queries if it be not probable that the attack of insanity, in 1811, was owing to inflammation in this part of the cerebellum, which becoming chronic, produced at length the alteration of texture above described.

CEREBRUM.

Affections of the *brain* are much more common in maniacal cases than of the cerebellum.

Case 4. A soldier, 32 years of age, of sanguineous temperament, was admitted as insane into the Bicêtre. He had been rendered deaf by exposure to a long and tremendous cannonade, after which he showed symptoms of mental alienation. He was attacked by phthisis pulmonalis while in the Bicêtre, and after going through the different stages, died. On dissection, the viscera of the abdomen were found healthy—the lungs filled with tubercles in a state of suppuration—the meninges of the brain healthy—a tumour the size of a nut in the anterior lobe of the right hemisphere. This tumour was enveloped in a peculiar membrane or cyst, intimately connected with the surrounding cerebral mass. Cut into, the tumour presented a substance of a lardaceous consistence.

The two next cases related by our author were epileptics, between whom and maniacs there is but too much relationship.

Case 5. A man, aged 40, had been epileptic since the age of 18, the complaint having been brought on by a fright. The paroxysms of the disease were not, in general, more frequent than once or twice in the month. During one night, however, while in the Bicêtre, he had several paroxysms of epilepsy in succession, and no alarm being given by the nurses, the man died with all the symptoms of asphyxia—an accident which not uncommonly happens, under such circumstance, unless bleeding be had recourse to in time. On dissection, a portion of the posterior lobe of the left hemisphere of the brain was found disorganized, and converted into a yellow pultaceous matter, and surrounded by a portion of indurated brain.

Another epileptic, 30 years of age, had had paroxysms of the disease twice a week for the last five years; the disease having arisen without ostensible cause, and not as yet attended by intellectual aberration. He was suddenly seized one day, without evincing (according to the report of the nurse) any of those struggles which attended all former paroxysms, and carried to the infirmary of the institution in the following state:—face flushed—vessels of the conjunctiva gorged—tongue embarrassed—ideas confused—pulse strong and frequent—respiration sibilant. Notwithstanding bleedings, sinapisms, and other means, the apoplectic state increased, and the patient died on the third day of the attack.

On dissection, the viscera of the thorax and abdomen were found healthy, with the exception of the heart, which was very large in

proportion to the size of the patient. The cerebral vessels were greatly gorged with blood. On the borders of the hemispheres opposite the falx, were developed, very gradually no doubt, red, callous excrescences, similar in appearance to those syphilitic vegetations called *cauliflower* excrescences. The lateral ventricles, especially the left, were very much distended with serous effusion.

The following case is remarkable.

Case 7. Francis ———, 56 years of age, who had been three years in prison, evinced towards the end of November, 1814, a certain absence of mind, which was remarked by his comrades. On the 1st December, he experienced a sudden attack of general paralysis, and was carried to the infirmary, being incapable of speaking, hearing, seeing, or feeling—the muscles were relaxed, the respiration natural, the animal temperature moderate, the pulse slow and not very strong. Four grains of emetic tartar were exhibited, but produced no effect. In the evening four grains more were given, which produced only a few stools. He now swallowed, though with difficulty, some stimulating potions—sinapisms were applied to the feet. It was not till after 48 hours that he recovered from this lethargic state resembling a profound sleep. Seven hours after this, he experienced an attack of mania, which lasted but a few hours, and then changed into the original lethargy, in which he lay insensible. After applying blisters to the thighs, and taking a large quantity of blood from the arm, the patient recovered sense again for nine or ten hours, after which he relapsed once more into a state of *carus*, as above described. During the lucid interval he complained greatly of his head, and of pains in his limbs. He continued to relapse and revive alternately, till the 15th December, when he found himself so well as to be able to take some food. He had no other attack till the 21st, when he fell out of a window into the street, and was taken up paralytic, as in the first instance. This state continued two days, during which he was insensible. From this he revived, and was rather violently insane for some hours, when he fell back into *carus* which lasted 36 hours. This state of alternate carus and mania continued till the 12th January, 1815. The perodicity of the attacks, and the want of well marked pyrexia, determined our author to exhibit the cinchona, both in powder and decoction. In three days from the commencement of this mode of treatment, the symptoms, both of mania and paralysis, disappeared. The medicine was continued five days, and the man was so well in a month, as to return to his domestic avocations.

Our author has no doubt in his own mind, that the above was a case of masked intermittent fever of a malignant nature—"*fièvre intermittente pernicieuse larvée.*"

MENINGES.

There can be no doubt that, in the great majority of cases, inflammation of the cerebral meninges will exhibit the usual phenomena of phrenitis—as fever, exaltation of the intellectual functions, delirium, and functional disturbance in various other organs than the brain. The following observations are brought forward to prove that the

rule is not absolute, and that the phrenitic excitement is not always in proportion to the meningeal inflammation.

Case 8. A professor of music, 47 years of age, from some domestic inquietude, fell gradually into the following state:—agitation and delirium—insomnium—physical sensibility greatly increased—hard and full pulse—skin moist. If not confined, the patient was constantly in motion, upsetting and breaking every thing in his way. When confined by means of the straight waistcoat, &c. he struggled incessantly to disengage his limbs. He only pronounced some incoherent words and sentences, showing that his ideas were as disorderly as his muscular movements. After continuing nine days in this state, an inflammation arose in his right leg, which quickly took a gangrenous turn from the continual friction of the part, in consequence of the patient's restlessness. He died on the 17th day from the invasion of the phrenitic state.

Dissection was confidently expected to disclose well marked phlogosis of the brain or its membranes. No such thing was found. The contents of the cranium, and of both the other great cavities, were perfectly natural, with the exception of a rather firmer consistence than usual of the muscular substance of the heart, and of the brain and spinal marrow.

That the death of this patient was accelerated by the gangrene of the leg, there can hardly be a doubt; yet it is abundantly evident from this case, and still more so from the one which follows, that such disturbance of *function* may take place in the brain, as may destroy reason and even life, without producing any cognizable alteration of structure.

Case 9. A farmer, 53 years of age, lean, and accustomed to hard work, experienced, during the troubles of 1813, the loss of all his little property, and was himself obliged to fly to the woods to preserve his life. On returning to his former habitation, and finding but a wilderness, he lost his appetite, became sleepless and inconsolable, notwithstanding the incessant exertions of his children to cheer him up. His intellects soon gave way, and his family were forced to convey him to the Bicêtre. Here he was exceedingly violent, biting, tearing, and fighting with his keepers—crying out incessantly, and refusing all sustenance, or swallowing it at times voraciously. He continued fifteen days in this state, his strength gradually declining, but the insanity remaining unmitigated. The tongue to the last was moist, the pulse natural. On dissection, no inflammation, or traces of such, could be detected in any part of the brain or its coverings—on the contrary, they appeared blanched, and, as it were deprived of their due share of the vital fluid. No disease in the thoracic or abdominal viscera.

In respect to the above case, it is but fair to bear in mind that the abstinence from food, and gradual extenuation of the body before death, might very considerably tend to prevent post mortem traces of inflammation being cognizable, even if they had actually existed during life. We are of opinion indeed that *simple inflammation* of a serous tissue is often obliterated by death, or rather the exhaustion which precedes death. It is one or other of the termi-

nations of inflammatory action, which remain indelible, such as effusion, thickening, purulent secretion, &c. When the usual symptoms of inflammation are very evident during life, and yet no change of structure can be perceived on dissection, we are hardly justifiable in denying the pre-existence of phlogosis—and still less would we be justifiable in acting on this supposition in practice. The external signs of inflammation must be combated by the usual means, regardless of the *possibility* of our having a neurosis instead of a phlogosis to deal with.* Still it is very proper and necessary to be acquainted with the exceptions as well as the general rules—especially in medicine, where they are so numerous.

The following case is fully as remarkable as its predecessors.

Case 10. A man was picked up by the police, and sent to the Bicêtre as alienated. No history could be traced, nor even could his name be ascertained. He appeared to be about 30 years of age, and muscular. He spent four days in the hospital in the following state:—he was constantly standing upright, his head thrown backwards—his limbs were on the stretch, but not stiff—he frequently uttered the following exclamation, "*Ah! mon Dieu!*" followed by a muttering of some indistinct words—his eyes were prominent and always open—the conjunctivæ injected—the pupils but little dilated, and not affected by light or shade—the jaws were kept shut, but not spasmodically locked—drink introduced into the mouth passed out again, without being swallowed. The physical sensibility was as obtuse as the moral, for he felt neither the pricking of pins, nor the aspersion of cold water, nor the application of heat, although blisters rose when applied to the skin. The organs of sense were not entirely obliterated in function, but external impressions on them could not rouse the brain to any reaction. Attention and judgment were completely suspended. The pulse was full and hard. A venesection made no alteration in the symptoms for better or worse. He died suddenly on the fourth night from his entrance into the Bicêtre; and on dissection the brain and its membranes, as also the thoracic and abdominal viscera, were found in a state of perfect integrity.

We have but one more case to analyse, and then we shall close this article.

Case 11. A man, 37 years of age, thin, and of a bilious temperament, was arrested for political opinions, and kept three months in prison, when he was acquitted. The doors of his jail had scarcely been opened, when he evinced a high degree of mental excitement—ran home and broke every thing that came in his way—knew not his parents—and would have thrown himself out of the windows, had they not been well guarded. He was conducted to the Bicêtre. His pulse was nervous, feeble, and frequent—he was constantly crying out, and muttering words without sense—his eyes were fixed

* As far as our own observations have extended, we have been led to think moral causes act more on the functions, and physical causes on the structure of the brain. It is therefore very advisable, in all cases, to inquire particularly into the etiology of cerebral affections, and into the manners, habits, and tempers of the patients.

—a cold perspiration covered the body—his agitation was without remission, day and night, in spite of sedative, and antispasmodic potions, warm baths, sanguineous evacuations, sinapisms, and blisters. He died on the third day after coming to the hospital, and on the fifth from the commencement of the phrensy. On dissection, the muscles of the extremities appeared in a state of rigid contraction—the heart was rather larger than natural, and firm—stomach and intestines contracted—all parts of the brain firm, and of the consistence of liver, so as to crepitate under the scalpel. Outwardly and inwardly the brain was of a white colour. No fluid was found in the ventricles, and the meninges were perfectly healthy.

This firmness of the brain has been observed in many maniacs, and was pointed out by Morgagni in epileptics. We hope the above facts will be found useful, and we shall, for the present, make no comments on them.—*Med. Chir. Review.*

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Results obtained by the Use of the Iodine in the Clinico-Medical Institute of the Imperial and Royal University of Padua.—After the effects obtained by Dr. Coindet, in the cure of the goitre, by the use of iodine, and communicated by him to the Helvetic Society, which resolved immediately on publishing his memoir, the Clinical Institute under the direction of Professor Brera, put this new remedy to the test, not indeed in the cure of goitre but to restore sanguineous assimilation, increase vascular action, and act in a particular manner on the uterine system in deficient menstruation. Five persons were subjected to these experiments. The preparation preferred was the alcoholic tincture; sometimes the iodine was united to the black oxide of manganese.

Case 1st. Maria Filippini, aged 18 years, had until within these four months past enjoyed excellent health, since then she has had suppression of the menses, by which she has been subjected to repeated spittings of blood.

Arrived at the clinical ward, and subjected to the use of the iodine, —the spitting disappeared, and she went away, her health tolerably well re-established.

Case 2d. Antonia Masa, 21 years of age, likewise wanting in her menstrual discharges for some time past: was taken with vicarious hæmoptysis. The colour of the patient was yellowish, and showed that she also was affected with diseased enlargement of the liver, the result of vascular energy.

The continued use of the iodine restored the functions of the uterus in such a manner that twice the menses flowed for six days in succession.—She is now perfectly restored to health.

Case 3d. Catherine Phillini, 22 years of age, suffering under dysentery from suppressed menstruation, was cured by the continued use of the iodine.

Case 4th. Giovanna Guerinæ, aged 16 years, pellagrous, entered the Clinical Institute with diarrhœa, reduced strength, suppression of the menses, and so emaciated that she seemed already labouring under marasmus.—The tincture of iodine restored this patient to her primitive health.

Case 5th. Maria Giacomini, 23 years of age, presented herself, complaining of prostration of strength, suppression of the menses, and in place of them a monthly loss of blood from the internal angle of the left eye.—The complexion of the patient was jaundiced, and she showed a state of preternatural assimilation in the greater number of the organic tissues, by a defect of vascular action.—When put under the use of chalybeate remedies, she almost constantly vomited.—The iodine alone was discovered to be eminently advantageous. With happy results she was then treated with the tincture of iodine, and subsequently, the same combined with the black oxide of manganese. —The palpebral hæmorrhage ceased, and true menstruation appeared in its place.—The patient gained strength and colour, but the want of iodine prevented us from continuing our observations.

It is worthy of remark, that this remedy, besides its being endowed with the property of increasing vascular action, restoring sanguification and re-establishing the ordinary sanguineous excretions, particularly from the uterine vascular system on which it would seem to exercise a direct action, excites the activity of the gastric functions, so that under its use the appetite is renewed and active, the work of digestion goes on with celerity and without inconvenience even in delicate females, and those with weak stomachs.—*London Medical and Physical Journal.*

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*Axillary Aneurism.** Our surgical brethren are well aware how few successful cases (or even attempts) there are on record of the kind now before us. We conceive that, next to the aorta itself, the subclavian artery is the least accessible to the ligature, especially in the living subject, and where disease has deranged all the relative position of parts. Mr. Todd is entitled to the greatest praise for his intrepidity and dexterity in an operation of such tremendous difficulty and danger.

The patient (John Dundas) was 53 years of age when he entered the Richmond Hospital, on the 21st of January of the present year. He stated, that he had been uniformly healthy and temperate till early in June 1821, when he felt a stiffness and numbness in two of the fingers of the right hand, which, in a month, was attended with inability to close the fingers. The hand then, and ultimately the arm, became œdematous. In October of the same year, he perceived a small tumour in the axilla, which rapidly increased, attended with weight, pain and pressure. He went first into the Fermanagh Infirmary, and from thence was transported to the Richmond Hospital. The aneurism, at this time, not only distended the axilla, so as to cause the scapula to project considerably backwards, but it was very prominent anteriorly—its base extending upwards to the clavicle—inwards to the edge of the sternum—downwards to the nipple of the breast—and on the side of the thorax, to the upper edge of the sixth rib. The tumour was tense, elastic, and pulsating—the skin feeling

* A Case of unusually large Aneurism of the right Axillary Artery; in which the Subclavian Artery was tied. By Charles H. Todd, Esq. Senior Surgeon to the Richmond Surgical Hospital. Octavo, p. 13. Dublin, 1822.

stretched upon it, but not discoloured—slight pressure did not give pain; but the patient complained of deep-seated uneasiness. The whole extremity was œdematous, and the elbow separated to a great distance from the side. No pulsation could be perceived in the radial or ulnar artery of the diseased limb, but there was little diminution of animal temperature.

On the 25th of January, the pain of the arm was so intense, and the size and pulsation of the tumour so much increased, that venesection and opiates were necessary. No permanent advantage being gained by any means pursued, it was determined to have recourse to the operation, which was performed on the 8th of February, in the presence of several surgeons of the Irish metropolis. We deem it proper to give the steps of the operation in Mr. Todd's own words.

"The patient was placed on a table, lying on his back, with the upper part of his thorax somewhat raised; his head and neck inclined to the left, and his right shoulder as much as possible depressed by an assistant steadily drawing down the arm of that side. A slightly curved incision was made through the common integuments across the lower part of the neck, commencing about two inches above the acromial, and terminating half an inch above and to the outer side of the sternal extremity of the clavicle. The convexity of this incision was downwards, so that by a little dissection of the integuments upwards, a small flap was made, which afforded ample room for the subsequent stages of the operation, and evinced the inutility of a more extensive, or a more complicated division of the skin.

"The next part of the operation consisted in dividing the platisma myoides, fascia, and subjacent cellular tissue; this occupied a considerable time, in consequence of the great number of veins which it was found necessary to secure with ligatures. The external jugular, and two or three other superficial veins were easily secured, but a series of more deeply seated veins proved extremely troublesome; one branch of these in particular poured out blood in an alarming quantity, and receded so much within the layers of the fascia, that I was at last compelled to use the needle, and to include in the ligature the portion of fascia with which the divided vein was connected.

"I feel it incumbent on me here to state, that this profuse discharge of venous blood was chiefly the consequence of the veins having been divided too near the large trunk into which they opened; the blood therefore flowed freely in a retrograde direction from the subclavian vein into them, and issued from their inferior orifices; the bleeding from their superior orifices was inconsiderable and easily controlled. To have tied these veins individually, before dividing them, would have been an undertaking both tedious and difficult to execute, for they constituted a most intricate plexus of convoluted vessels imbedded in cellular tissue and layers of fascia.

"The venous hæmorrhage having been at last effectually suppressed, I proceeded to search for the omo-hyoideus muscle: so much however was the relation of parts altered by the magnitude of the tumour, and consequent elevation of the clavicle, that the portion of this muscle expected to be brought into view in this stage of the operation, was situated more than an inch below the clavicle; and it

was found necessary to draw it up from its concealment, and to cut it across, that the subjacent parts might become accessible.

"Having applied my finger to the edge of the scalenus anticus, I was directed by it to the situation of the artery; but at this juncture causes of further difficulty arose, chiefly from the great depth of the wound, and the doubt which the almost total absence of pulsation in the artery naturally excited in regard to its identity. It is necessary however to observe, that this obscurity in the pulsation of the subclavian artery was by no means referrible to the debility or exhausted state of the patient, but probably depended on the vessel having been flattened upon the first rib by the degree of extension to which the aneurismal tumour in the axilla had subjected it.

"For some time I could not be convinced that the feebly pulsating vessel, to which the point of my finger was applied, was really an artery of such magnitude as the subclavian; and aware of the disappointments which others were reported to have sustained in this operation,* I resolved to satisfy myself and my assistants upon a point of so much importance, before a ligature should be applied. The depth of the wound rendered it impossible to see to the bottom of it, accordingly, I kept the point of my left fore-finger on the vessel, and cautiously detached it from its connexions with the blunt extremity of a director; having then introduced the fore-finger of my right hand also into the wound, I succeeded in compressing the vessel between the ends of my fingers, when the pulsation of the tumour immediately ceased, returning when the pressure was discontinued. This expedient was conclusive, and, for obvious reasons, more satisfactory than that of pressing the artery downwards against the first rib.

"From the unusual degree of displacement of the clavicle, it was expected that great difficulty would have arisen in the application of the ligature to the artery; I was therefore provided with the several instruments which have been recommended to facilitate this step of the operation, however, none of these were employed, as the object was speedily affected with a common aneurism needle. At first I attempted to pass the needle in front of the artery, with the view of giving every security to the vein; to this the position of the clavicle constituted an insuperable obstacle; I therefore directed the needle

* "See Sir Astley Cooper's case in *Lon. Med. Review*, vol. ii. and Dr. Rutherford's account of M. Dupuytren's unsuccessful operation at the Hotel Dieu, in *Edin. Med. and Surg. Journal*, No. 63.

"An eminent English surgeon, then on a professional tour, was present at M. Dupuytren's operation and dissection, and favoured me with an account of them, which corresponds with that given by Dr. Rutherford. In the same letter (dated June 21, 1819,) he states that, "three days since a surgeon of great celebrity attempted this operation, on a most admirable subject, and in an early stage of axillary aneurism, but he could not even find the vessel, and abandoned the operation.'

"Mr. Samuel Cooper informs us, that one of the cervical nerves may be mistaken for the subclavian artery, in consequence of the pulsation of this vessel being communicated to all the adjacent parts; and that he has seen a mistake of this kind actually made by very skilful surgeons." *First Lines of the Practice of Surgery, vol.* I. *p.* 319.

along the margin of the scalenus, and then insinuated the point of it under the artery from behind, guarding the vein with the fore-finger of my left hand, until the point of the needle was sufficiently elevated. I was then enabled to seize the ligature with the extremities of my fore-fingers, which I had introduced into the wound, nearly in the same manner as when compressing the artery, and the needle being held by an assistant, one end of the ligature was drawn out anteriorly, and the needle was removed.

"The artery then lay upon the ligature; and I requested that my assistants, and such other professional gentlemen as could conveniently approach the table, should convince themselves of this fact, by making the most accurate examination. The knot was now tied, and a sufficient tightness ensured by the ends of the ligature having been passed in the ordinary way through the serre-nœud. On the ligature being tightened, the pulsation of the tumour entirely subsided; its tension was considerably diminished, and the patient felt an increased degree of numbness of the arm; the external wound was then dressed, and he was laid in bed with the limb supported on a pillow by his side." 3.

The patient did not appear much exhausted, notwithstanding the loss of venous blood during the operation. At night an opiate was administered, and, for the first time, since his admission into the hospital, produced tranquil and refreshing sleep. On the following day, there were no alarming symptoms, and the tumour was obviously diminished. There was some dyspnœa towards the evening, which was relieved by venesection. These attacks of dyspnœa recurred frequently, and frequently required bleeding and digitalis, with aperient medicine. The symptomatic fever which succeeded to this painful operation, was inconsiderable. On the 14th of February the wound was dressed for the first time, and the sutures removed. On the 15th, several ligatures came away—the discharge being small and healthy. The œdema of the limb had greatly subsided—no pulsation could be distinguished in any of the arterial trunks—the temperature of the limb had continued at 96°—the pulse at 92°. We cannot pursue the diurnal reports. On the 3d of May, when the paper closes, the man's "amendment has been most satisfactory;—the tumour is still further reduced, and he is gradually regaining the power of the muscles which move the arm on the scapula. The joints of the wrist and fingers have lost much of the unnatural laxity, and the integuments of the hand no longer possess the diseased appearances reported on the 20th of March."

We need hardly say, that this operation exhibits one of the most splendid triumphs of modern over ancient surgery. It must be received as a strong testimony in favour of the expediency of tying the subclavian artery, even under circumstances of peculiar difficulty and danger.—*Med. Chir. Review.*

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*Tetanus.** Tetanus, especially of the traumatic kind, is so dreadful a disease, and so very often fatal, that every successful case should

* Mr. Geo. Barr. Surgeon, Kelsyth. Edinb. Journal, No. 71.

have all possible publicity, for the good of humanity and the honour of the profession.* Mr. Barr's patient was a young man, who, in falling from a horse, was trampled on the belly by the animal. He went about his usual avocations, however, for seventeen days, when he was, all at once, seized with tremendous universal spasms, bending the head and trunk in the form of a bow—but whether forward or backward is not stated. Mr. B. saw him an hour after the attack, and the spasms were then recurring every five minutes. The neck was stiff and immovable; and many of the muscles, especially the pectorals, felt rigid. The jaws were firmly locked. Our author instantly bled him, *pleno rivo*, to the amount of 50 ounces;† in about half an hour after which, the muscles of the jaw relaxed, and three fluid drachms of laudanum were exhibited. The spasms became less powerful and less frequent, having now an interval of half an hour. A drachm of laudanum was repeated after each spasm. At three o'clock next morning, the patient was again bled to 12 ounces; the laudanum, combined with two grains of camphor, to be continued as before. The spasms now returned about once in the hour, and not nearly so severe as before. Throughout the whole of the second day the paroxysms recurred once an hour, the jaws being completely locked during each paroxysm. Bled in the evening to 20 ounces. Having vomited the tincture, four grains of solid opium were ordered to be taken after each spasm. A nitric acid blister was applied to the whole spine. The spasms now occurred every two or three hours. On the third day some strong purgative pills, and three 15 grain doses of calomel were ordered to be taken. Had seven stools through the day, having taken the 45 grains of calomel. The spasms recurred this day every hour and half, and very severe. A drachm of solid opium was therefore given at once. In about 20 minutes the patient began to doze a little, but not to sleep—complained of giddiness, and some dyspnœa. In an hour and ten minutes he fell asleep, shortly after which, the breathing became slow and very laborious, the number of respirations being four in the minute. The patient having continued in this state about two hours, Mr. B. roused him, when he felt nausea, which was succeeded by full vomiting on taking some warm water. This produced much relief. *Fourth day.* No spasms since last night, except one paroxysm at 10 o'clock this forenoon. Mouth sore from the calomel. Venesection to 16 ounces, the pulse being 100 and full. *Fifth day.* No spasms—mouth very sore, and saliva flowing gently. From this time he became convalescent, and soon recovered completely.

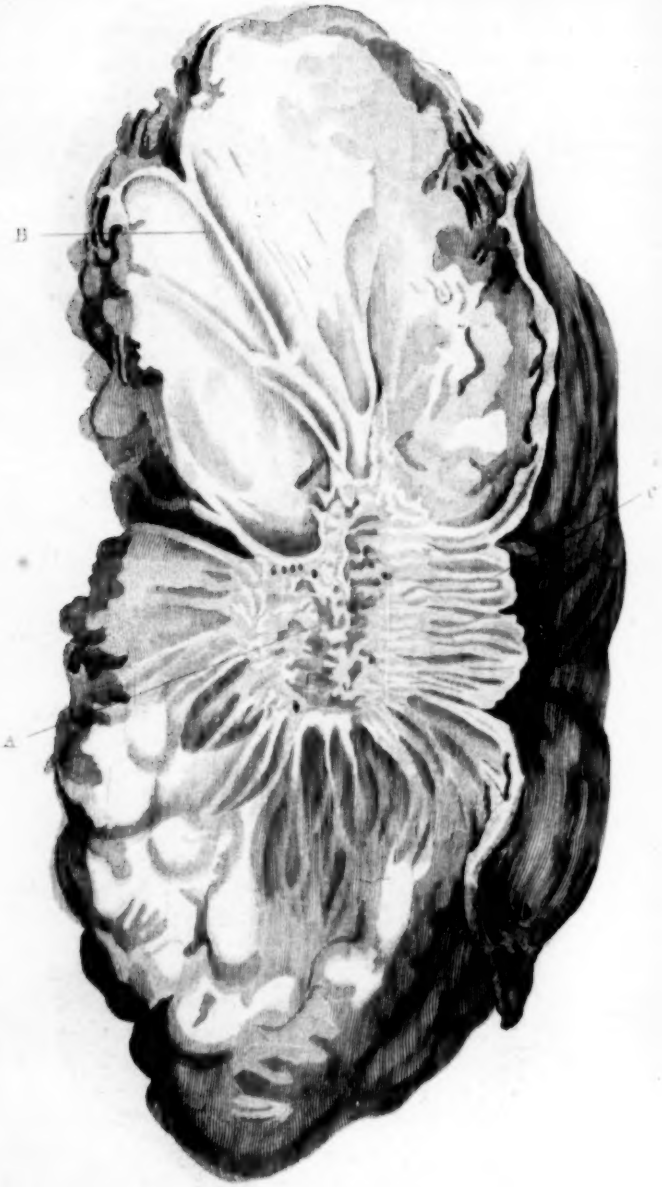
We see in the above case that three powerful remedies were employed—venesection, opium, and mercury. We cannot therefore

* Aretæus, with his usual terseness and forcible language, calls tetanus an "inhumana calamitas, injucundus aspectus, triste intuenti spectaculum, et *malum insanabile*." Modern medicine, on this, as on very many other occasions, can boast of much more success than the ancient. Tetanus cannot now be called "malum insanabile," even were it more fatal than it is.—*Ed.*

† It appears from Celsus that Asclepiades was a great advocate for bleeding in tetanus. "Asclepiades utique mittendum sanguinem credidit." Celsus himself, among many other means, recommends cupping the spine, and then applying the actual cautery. We think this plan would probably be useful.—*Ed.*

positively say which was the efficient medicine. Perhaps no one or two of them would have succeeded. The venesection prepared the way for the speedy operation of the opium and calomel. We have long been convinced that general and local (from the spine) bleeding, opium, and mercury, are the best means we possess of checking this formidable disease. These are the means indeed which have been employed of late years between the tropics, where tetanus is so prevalent. The dose of opium, in the present instance, we think was rather too large, though we are quite satisfied that in tetanus and some other painful diseases, such is the torpor or insensibility of the stomach, that opium and all other medicines may be taken in doses *infinitely* greater than the same patients would be able to bear in a state of health. Purgatives are useful auxiliaries in recalling sensibility to the ganglionic system of viscera, and thus lessening the quantum of irritation on the origins of the spinal nerves. All the phenomena, indeed, of tetanus would lead us to conclude that nervous irritation of a high degree is propagated to the spinal marrow; and that, upon a well known and universal principle ("ubi irritatio ibi fluxus,") we may next expect the vascular system to be drawn, sooner or later, into a morbid state. The irritation, however, may be so great, and the spasms so violent, as to destroy life without leaving traces of vascular derangement on dissection. In many instances these vascular alterations have been detected; and whether they are detected or not, there can be no doubt of the nervous irritation in the first instance, and indeed throughout the whole of the disease.—*Medico-Chirurgical Review.*

Croton Tiglium.—A letter from Mr. Thomson of the East India Company's service, dated Dinapore, 16th January, 1822, contains the following passage:—"One of the seeds (of the croton,) reduced to powder, and made into two or three pills with a little pepper, forms the most common purgative used by the natives of this part of India. It acts speedily and powerfully; but I suspect, if not conjoined with some aromatic, it will occasion much griping. We now use it pretty frequently, combined with ginger, and, since the receipt of your letter employ the expressed oil with similar results. The latter, given in a dose of one drop, almost always purges with considerable activity; but it must be taken in some mucilaginous vehicle, for it will blister the tongue and fauces when taken by itself. I have given as much as ten drops at once, which induced instantaneous vomiting, followed by purging, but no other bad consequences ensued. In doses of three or four drops, it acts quickly and powerfully, emptying the bowels of their contents, and generally produces eight, ten, or a dozen evacuations. In certain habits and complaints, I conceive it will prove an excellent purgative, and, from its cheapness, may be introduced with advantage into hospital practice.*** When applied externally as a liniment, it produces a profuse crop of small pustules on the part, which may render it of service in certain chronic complaints. I have not yet, however, had sufficient opportunities of ascertaining all its medical properties.—*Lond. Med. and Phys. Journal.*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